

2009

## The cultural landscape of Perth's cemeteries

Daniel J. McDonald  
*Edith Cowan University*

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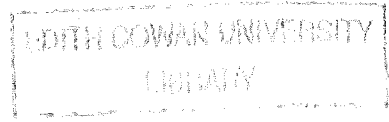
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**The cultural landscape of Perth's cemeteries**

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November 2009

## **Abstract**

All communities face the issue of what to do with the bodies of the deceased and a wide variety of methods have been employed around the world. Since Perth was founded, the use of cemeteries to fulfil this function was made mandatory by authorities. Although this function has not changed, the form and appearance of cemeteries shows dramatic change over time. Old, traditional cemeteries with their regulated grid layouts and rows of large monumental works have been replaced with new park-like cemeteries with neither religious demarcation nor headstones.

This research investigated these changes to the form and spatial organisation of cemetery landscapes and has sought to provide explanations for their development. It is based on the hypothesis that as a community grows and changes so have the methods employed to dispose of the physical remains of its dead. This variation in cemetery practice has interacted with the pre-existing landform to produce changes in the observable appearance of the landscape. Thus, cemetery practice provides a link between changes in society and cemetery form. Cultural landscape theory and sustainability both provide useful frameworks for analysis.

This dissertation has two main parts: a descriptive account of Perth's operational cemeteries, followed by an explanation that links cultural change to the changes in cemetery practice which has created those landscapes. The first is a spatial analysis and a comparison of the cemetery sites with the aim of identifying and describing the components of a cemetery landscape. This uses satellite imagery, on-site surveys and interpretation of the cemetery maps published by the Metropolitan Cemeteries Board. The second part uses literary resources, statistics and interviews to describe and explain the link between changing cemetery practice and changes in the society which cemeteries serve.

The research has indicated that the significant component of the cemetery landscape is the disposal landscape. The introduction of cremation and lawn burial areas as a response to cultural demands, and changes to more efficient internal processes have produced dramatic changes in the appearance of the cemetery landscape. Other changes such as the use of non-denominational areas and the adoption of organic curved designs for cemetery layout were examined.

In addition to adding to a limited body of academic work, it is hoped that this study will help urban planners better cater to the future needs of Perth's residents.



## **Declaration**

I certify that this thesis does not, to the best of my knowledge and belief:

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II. contain any material previously published or written by another person except where due reference is made in the text; or

III. contain any defamatory material.

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## USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

## **Acknowledgments**

I would like express my sincerest appreciation to my supervisor and mentor Dr. Hugo Bekle for his unflagging support, guidance and encouragement during the course of this study.

In addition I thank the staff at ECU for the willing support and assistance they have selflessly offered and their experience has been invaluable in shaping the direction of this research.

Thanks go to the staff at the Metropolitan Cemeteries Board staff for their rapid responses to requests for information, and special thanks to Andrew Fox, the public relations manager for taking the time to be interviewed.

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# 1 CHAPTER 1: INTRODCUTION

## 1.1 Approaches and definitions

Throughout history, communities worldwide have developed culturally complex practices for the disposal of the dead, often infused with religious or spiritual beliefs. Whatever the beliefs and rituals, one aspect remains constant and that is what to do with the body of the deceased. The approach of this investigation has been to focus on the process of the physical disposal of the deceased and the ways that this is represented in the landscape.

This study investigates the form and spatial organisation of the cemetery landscapes that constitute Perth's disposal system. As a geographical study, emphasis is given to the description of, and accounting for the appearance of the cemetery landscapes. The research was organised in two sections. The first section investigated and surveyed the cemetery landscapes. The data were examined to identify important temporal and spatial patterns in the cemetery landscapes, as well as providing an account of the site and situation of these facilities. The second section examines the cemetery practices that have generated these landscapes. This is focused on the various changes in the population and culture of Perth and the ways that the administrators of these cemeteries have responded to these changes by modifying the range of processes and activities involved in cemetery operation or *cemetery practice*.

This investigation focuses on the predominant cemetery land use, namely the area where the bodies or ashes are laid to rest. For the purposes of this study, these areas are referred to as 'disposal landscapes'. Disposal landscapes are the reason for a cemetery's existence and the one that is most relevant to visitors and future occupants. This term emphasises the approach adopted for this study to deal with the physical disposal process and human actions that have changed the form of cemetery landscapes. However, these changes are also linked to deeply rooted cultural and spiritual beliefs. These social aspects are considered in explanation of the resultant spatial form in cemeteries, but a more detailed treatment was beyond the scope of this study.

## 1.2 The Background to the Study

The British founders of Perth were well aware of this essential part of a community's infrastructure, as is indicated in a dispatch dated December 30, 1828, where Captain James Stirling receives instructions to ensure that any settlements make allowance for 'cemeteries and other works of utility and general convenience' Later, in the first year of the Swan River Colony a notice, dated Feb 13th 1830, declared...

That to prevent indiscriminate Burials and unpleasant consequences arising there from, in a warm climate, a Burial Ground will be set apart in Every Township or Parish; and that interments must take place in them only". (Quoted by Liveris, 1999)

As a British colony, the methods followed those of the homeland and the system of burials within defined cemetery and graveyard areas was adopted. Despite early difficulties the colony proved successful and its population grew, as did the size and number of cemeteries that served it. East Perth Cemetery took its first burials in (1830) and serviced the needs of Perth until the opening of Guildford Cemetery (late 1890s), Fremantle Cemetery in (1898) and Karrakatta Cemetery (1899). As the city grew outwards, more cemeteries were opened: Pinnaroo Valley Memorial Park (1978) servicing the north and recently Rockingham Regional Memorial Park (2007) to accommodate demand south of Perth.



Figure 1.1. The striking differences in appearance between Karrakatta and Pinnaroo cemeteries.

Scenes such as these provided the motivation for this dissertation.

Casual observation of these cemeteries reveals that there are significant differences in their design, facilities and spatial organisation. A quick comparison of the appearance of the open park-like cemetery at Pinnaroo and the more 'traditional' cemeteries of East Perth or Karrakatta clearly demonstrates that changes have taken place (Figure 1.1). Yet



the primary functions of a cemetery, namely that of human body disposal, and a place for the living to remember the dead have remained unchanged throughout this period. What have changed are the cemetery practices that are used to fulfil these functions.

### 1.3 The Significance of the Study



Figure 1.2. The locations of Australia's 4402 recorded cemeteries. Locations are marked in red and are not to scale. A large number of these sites are no longer operational. The correspondence with a map of population densities is clear. (Blair, 2009)

A significant factor of cemeteries changing landscapes is that cemeteries are an important part of a settlements infrastructure as they occupy considerable tracts of land to fulfil their purpose, some 328 hectares. However, preliminary research about the history and geography of cemeteries in general, and specifically those in Perth, revealed large gaps in our knowledge of what has driven these changes and how they are expressed on the landscape.

In the future, there will be increasing and varied demands upon cemeteries and this type of research will help to ensure that the needs of the community are met. The population of Perth now stands at 1.55 million and is expected to reach 2.27 million by 2026 and 3.4 million by 2056 (ABS, 2009). With a population increase exceeding 100 percent clearly indicates a significant rise in demand for cemetery services. The composition of this already multicultural population is expected to become even more diverse and will place its own set of demands upon cemeteries.

The information in this dissertation aims at providing an understanding of trends and links between changing culture and its expression in the cemetery landscape. This may assist future planners make better decisions and avoid the emotional, unpopular and expensive problems that have resulted from poor planning in other cities (The West Australian, 2009).

## 1.4 Conceptual Framework

Books, journal articles and other literary resources employed in this research can be divided into those pertaining to the subject matter (cemeteries, death and the history of Perth) and texts about cultural landscapes, urban planning and spatial organisation geography.

### Cemeteries and Death

Few academic texts discuss the cemeteries of Perth in any detail. Fortunately there is an outstanding account of the first 100 years of Karrakatta Cemetery by Leonie Liveris, *“Memories Eternal: The first hundred years of Karrakatta”* published in 1999. This has been an invaluable source for this research. Liveris has another work, *“Monuments and masons: cemeteries at Karrakatta, Fremantle, Guildford, and Midland”* that, unfortunately, is due for publication shortly after the completion of this dissertation. Judging by the quality of her previous work this is likely to be a useful source for others interested in this subject.

*“This grave and burning question: a centenary history of cremation in Australia”*, written by Robert Nicol in 2003, is another extremely thorough work that stands alone in its coverage of this subject.

*The encyclopedia of cremation* (Davies & Mates, 2005) provides excellent material on the religious history of cremation and the influence of various social forces.

A number of journal articles concern themselves with cemeteries, although not those in Perth. Francaviglia, an author recognised as an expert in this field, published *“The cemetery as an evolving cultural landscape”* in 1971, a paper that has played an influential role in shaping this work and revealed different ways that a cemetery landscape can be read.

### Cultural landscapes

Lesley Head’s (2000) *“Cultural landscape and environmental change”* has provided the framework for the analysis of the cultural drivers of landscape change. The approach taken by Head emphasises the interplay of a number of forces rather than arguing for direct cause and effect relationships was considered appropriate for this dissertation.

## 1.5 Study area and timeframe

The population of Perth has been served by a number of cemeteries since the settlement's founding in 1829, and of the seven significant sites, six are still operational. While the focus of this thesis is the contemporary cemetery landscape, these landscapes have been formed by factors that date back though their entire operational period, giving this study a historical component. This is done with recognition that Aboriginals have occupied this land for more than 40,000 years and that their mortuary practices have their own distinctive cultural landscape, worthy of academic interest but beyond the temporal scope of the present study.



Figure 1.3. The Perth Metropolitan study area.

The satellite image shows the locations of the three generations of cemeteries that have served the needs of the community of Perth.

The 1<sup>st</sup> generation at East Perth closed around 1900. The second generation, shown in orange, all opened at the turn of the 20<sup>th</sup> century and are still operational. The third generation sites, in red, were added to the north and south in 1987 and 2007 respectively.

Spatially, the study area (see Figure 1.3) is the 'Major Statistical Region of Perth' using the definition as supplied by the Australian Bureau of Statistics. This can be further subdivided into the following statistical subdivisions: Central Metropolitan, South East Metropolitan, South West Metropolitan, North Metropolitan and East Metropolitan each of which contains a number of suburbs (see appendix Figure 5.2).

Perth possesses a number of unique characteristics that make it an appropriate locale for this type of study. From settlement in 1829 to the present, the use of defined cemetery sites has been dictated by law. Moreover, the geographical isolation of Perth and the significant costs associated with corpse transportation ensure that most people who die here are disposed of here. However, it is estimated that 6% of the total number of disposals handled by Perth cemeteries represents those from rural Western Australia, choosing to be buried in Perth (Western Australia Cemeteries Working Party, 1987). The result is a study area that has only limited external influences; this may add strength to any conclusions that are drawn.

## **1.6 Research Questions**

It is proposed in this research that as a community grows and changes so do the methods employed to dispose of the physical remains of its deceased. This evolution in cemetery practice interacts with pre-existing landforms to produce changes that are expressed in observable differences in the cemetery landscape. Through this process, cemeteries can be considered as a reflection of the society they served in the past, the present population, and future generations.

The following research questions have been developed to explore the relationship between culture and cemetery landscape:

1. What are the significant features of a cemetery landscape?
2. What are the developments and trends in cemetery landscapes?
3. Who determines cemetery practice?
4. How has cemetery practice changed?
5. What has driven those changes?



## CHAPTER 2: METHODOLOGY AND RESEARCH TECHNIQUES

### 2.1 Government sources and reports

The “*Cemeteries Working Party Report*” of 1987 (Western Australia Cemeteries Working Party, 1987) stands alone as the key government report that highlights issues facing the cemetery industry. The report made a number of recommendations for changes to cemetery practice, many of which have been followed, and was the origin of calls for the consolidation of the cemeteries management under a single board.

The Australian Bureau of Statistics provides reliable demographic data on trends that have influenced evolving cemetery landscapes. Data concerning population, death rates, age structures, immigration and religious beliefs were obtained from this source.

The *Natural Burial Report*, commissioned by the South Australian government’s Environment, Resources and Development Committee in 2008 has provided information regarding the spatial issues that face cemeteries in the contemporary Australian urban environment, as well as information about the cultural trends that generated this investigation into a ‘natural burials’, a change that would represent a significant modification of cemetery practice.

The Metropolitan Cemeteries Board publishes a financial report each year. This contains a great deal more than just financial figures and has extensive sections on the various issues that were faced that year and also covers any operational changes and details future plans.

### 2.2 Mapping

Google Earth will be frequently used to illustrate the spatial arrangement of cemetery features and used for area calculations. Google Earth is ‘free to use’ and provides excellent detail and accuracy. The dates of the images used by Google Earth are noted in each image caption and are never more than 5 years old. This provides acceptable accuracy for this thesis.

The Metropolitan Cemeteries Board publishes a number of maps for all its sites. The maps are primarily designed to guide visitors as they indicate the locations of various disposal and memorial areas, the access ways, any denominational divisions and the location of various buildings.

Overlaying MCB maps upon Google satellite images reveals that the MCB maps are very accurate. Area and scale measurements and graphical work were done in Adobe Photoshop CS4, which has an excellent suite of tools for these purposes.

### **2.3 Field verification**

A number of visits were made to each of the cemeteries described in this study. These visits provided an opportunity to verify the accuracy of the Google images and the MCB maps, both of which were found to be remarkably accurate, up to date and representative of the real situation on the ground. Any significant developments not shown on the maps or Google images have been noted in the cemetery descriptions.

There is a notable exception, the absence of the recently built mausoleum on both the MCB visitors maps and Google Earth imagery, though an updated map is being developed (A. Fox, MCB, personal communication, October, 2009). On site measurements were used for this area calculation.



## CHAPTER 3: CEMETERY LANDSCAPES

The great variety of approaches that different cultural groups have taken to disposal makes for fascinating reading. In India, bodies are cremated in the open, occasionally watched by curious tourists, or hoisted high for vultures to devour, while in Australia the traditional practices of some Aboriginal tribes included burial in special areas using highly decorated bark coffins (L'Oste-Brown, Godwin, & Morwood, 2002)

In Perth, over the last 180 years, the process of disposal has taken place within the confines of a cemetery, but the act of burying people in special areas has a long anthropological history. Mythologist Joseph Campbell believed that the first burials implied recognition by an agricultural people of the cycle of life:

"[I]t is in the mother's body that grain is sown: the plowing of the earth is a begetting and the growth of the grain a birth....the idea of the earth as mother and of burial as a re-entry into the womb for rebirth appears to have recommended itself to at least some of the communities of mankind at an extremely early age..."  
(Campbell, 1959)

Cemeteries serve both functional and emotional purposes, providing for disposal of corpses and more importantly providing a place of remembrance for the living. As a site for corpse disposal cemeteries are much more than just sites of religious significance. The roles they serve make them an essential part of a city's infrastructure, community health and waste management procedures.

### 3.1 Defining cemetery appearance

This thesis is an account for the appearance of the cemeteries that currently serve the population of Perth. It aims at an explanation of what they look like, and why they look like that, from the perspective of a cultural geographer. The observable cemetery landscape is the sum of a number of components. This thesis identifies four dominant components in a cemetery landscape.

These are the site characteristics, the different disposal landscapes, the built infrastructure and the spatial arrangement of these features. Arguably the most significant component is the appearance of the disposal areas as these are the reason for a cemetery's existence, they occupy the majority of cemetery space and are of the most relevance to visitors and future occupants. For these reasons, a significant part of this

dissertation deals with the description of these areas and the explanation of their appearance.

### **3.1.1 The site and situation**

The site is the specific parcel of land upon which the cemetery is located, whereas the situation is its location in relation to the surrounding environment. These may have limited impact upon the appearance of the landscape.

Soil, topography, drainage, and flora and fauna are all important in determining the final cemetery landscape, although it should be recognised that these cemetery areas are highly constructed landscapes, as can be seen in the satellite image showing the extent of preparation works for Rockingham Regional Memorial Park (see Figure 3.17).

### **3.1.2 Disposal landscapes**

For the purposes of this dissertation, the 'disposal landscape' can be conceptualized as a product of two components; the method of disposal and the type of memorialisation erected, coinciding with the dual function of a cemetery as a place of disposal and as a place of remembrance.

$$\textit{Disposal Method} + \textit{Memorialisation} = \textit{Disposal Landscape}$$

#### **Disposal method**

The cemeteries of Perth now offer three basic disposal methods, burial, cremation or entombment. The disposal type was originally limited to burial, but this has expanded to include cremation in 1937 and entombment in 1995.

#### **Monuments and Memorialisation**

A memorial 'is an enduring tribute to a person who has died. It provides tangible evidence of a life lived, and a sense of focus for the bereaved to remember and reflect' (MCB Memorial Brochure, 2008, pg 4). Each of these disposal options has an associated set of memorialisations. Burials are associated with headstones or full monumental works, whereas cremations are usually memorialized with plaques or decorative urn walls. Entombment includes, crypts, mausoleums and columbaria, and is usually associated with substantial constructions that tend to have the memorialisation built in. It should be noted that there is not an exclusive relationship between each disposal method and the memorialisation option, as it is permitted to place cremated

remains in a tomb or grave. Gravesites are usually permitted to receive three or four coffins and any number of cremains (cremated remains). Traditionally in the form of an inscribed headstone, the range of options has increased dramatically since the introduction of cremation.

The addition of cremation and entombment disposal methods and the dramatic expansion of memorialisation options have created a range of disposal landscapes that remain as physical evidence of the practices and fashions at different times in the past.

### **3.1.3 Cemetery Infrastructure**

Disposal areas make up the bulk of the cemetery landscape, but the infrastructure that supports and links them also plays a role in the determining cemetery form. The most notable features of the cemetery landscape are the various buildings and other constructed infrastructure including offices, crematoria, mausoleums, roads, parking area, paths, garden landscaping, ornamentation and water features.

### **3.1.4 Spatial Organisation**

The spatial arrangement of a cemetery is a key determinant of its final appearance, such as whether it is an orderly grid or uses curves and other 'natural' design cues. Other forms of arrangement, such as the use of denominational zoning and the pattern of growth, have had a significant impact on the cemetery appearance and have changed as a response to changes in the ambient culture.

### 3.2 Perth's Cemeteries

The following section is a concise description of the six operational cemeteries that served Perth and its surrounding settlements since the turn of the 20<sup>th</sup> century. It catalogues the findings regarding the four categories of features that have been identified as those that give a cemetery its distinctive landscape. The descriptions touch upon the on the site and situation and describe the infrastructure elements but the focus is on the disposal landscapes and the spatial arrangement of the sites.

This thesis assumes some familiarity with the history of Perth. The history of Perth's cemeteries is less well known and timeline in Figure 3.1 adds context to the analysis that follows.

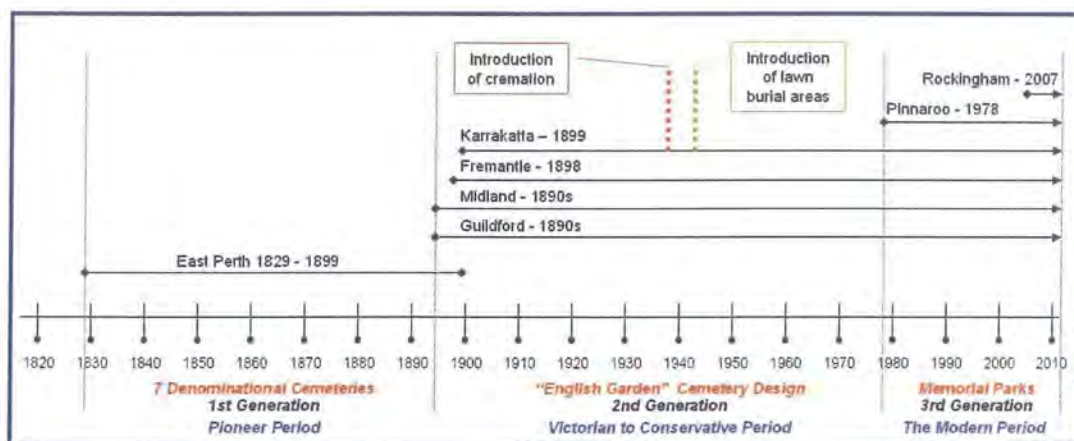


Figure 3.1. The timeline shows the years of cemetery operation. Two developments that have had great impact on the appearance of the cemetery landscape are the introduction of cremation in 1937 and lawn burial areas in 1942 at Karrakatta. Francaviglia's classifications are shown in blue. (McDonald, D. 2009)

The cemeteries of Perth are classifiable into 3 periods: this is an adaptation of the fourfold classification in Francaviglia's article 'The cemetery as an evolving cultural landscape' (Francaviglia, 1971). The present study identifies the pioneer period, the 'Victorian to conservative' period and the modern period. This dissertation concerns itself with the second and third generation cemeteries.



### 3.2.1 Karrakatta Cemetery

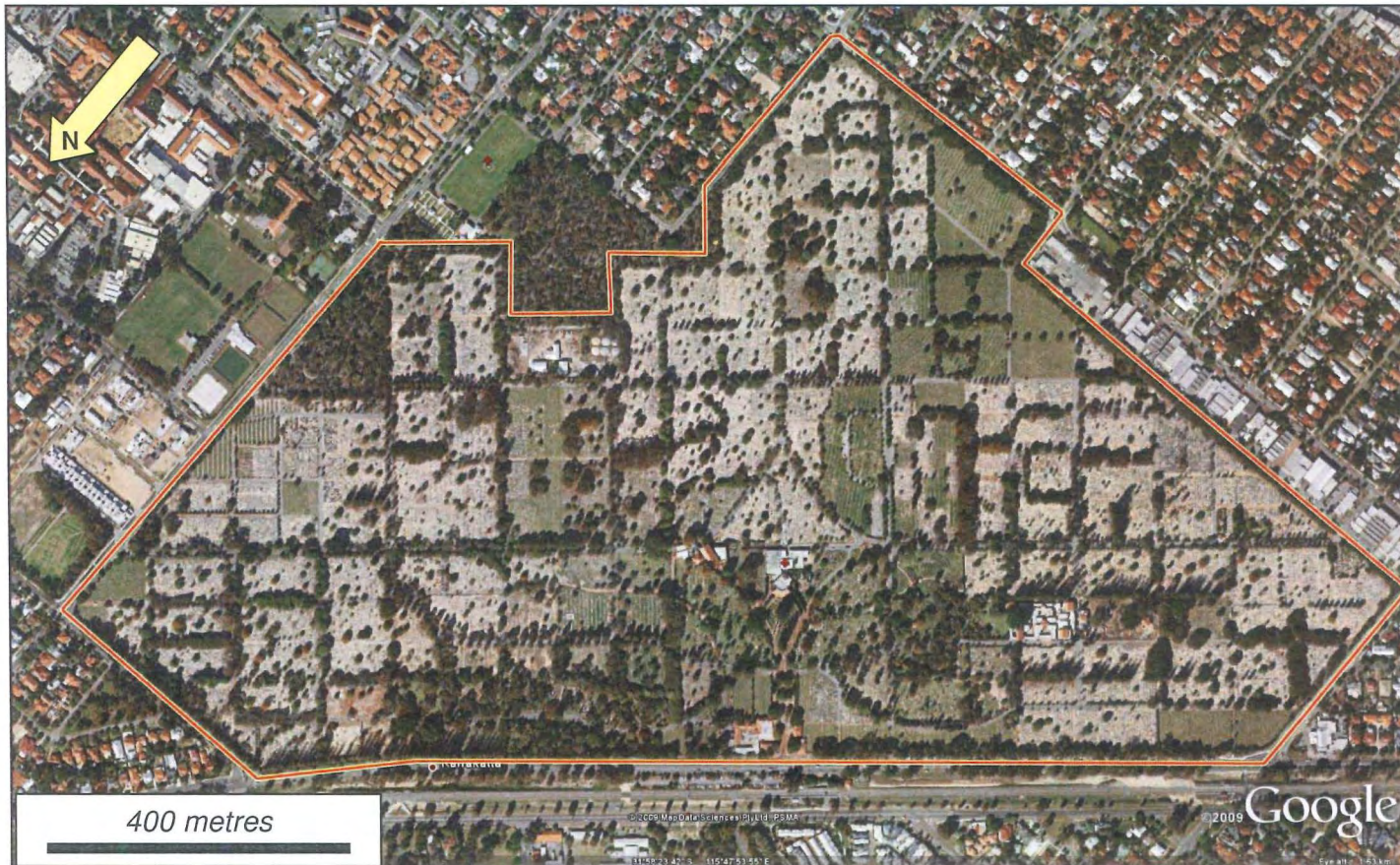


Figure 3.2. Karrakatta Cemetery landscape. Perth's oldest, largest and busiest cemetery. The mosaic of different disposal landscapes is a testament to its long period of operation and its varied responses to the cultural changes in the population it serves. (Google Earth image: May 5, 2008). Adapted by D. McDonald.



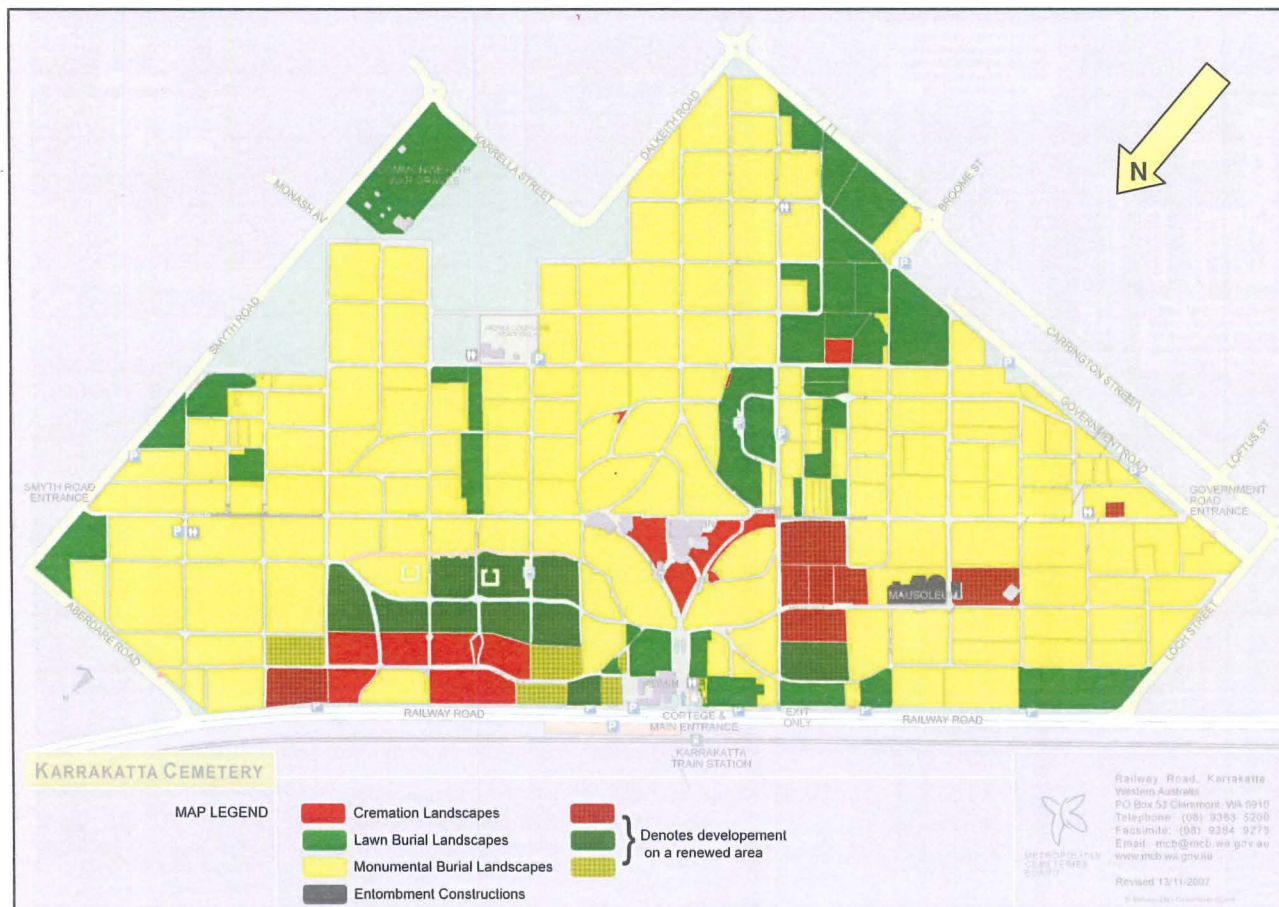


Figure 3.3. The different disposal areas at Karrakatta. Showing monumental burial areas in yellow, lawn burial sections in green and memorial gardens in red. To the right of center is the mausoleum, marked in grey. The shaded areas near the front were full monumental areas that have been through the renewal process. Note that the newer disposal areas, memorials and lawns are located on the periphery, as cemeteries tend to fill in an outwards from the front or center (Francaviglia, 1971). Renewal of old sections first is creating a similar pattern. (MCB, 2007). Adapted by D. McDonald.

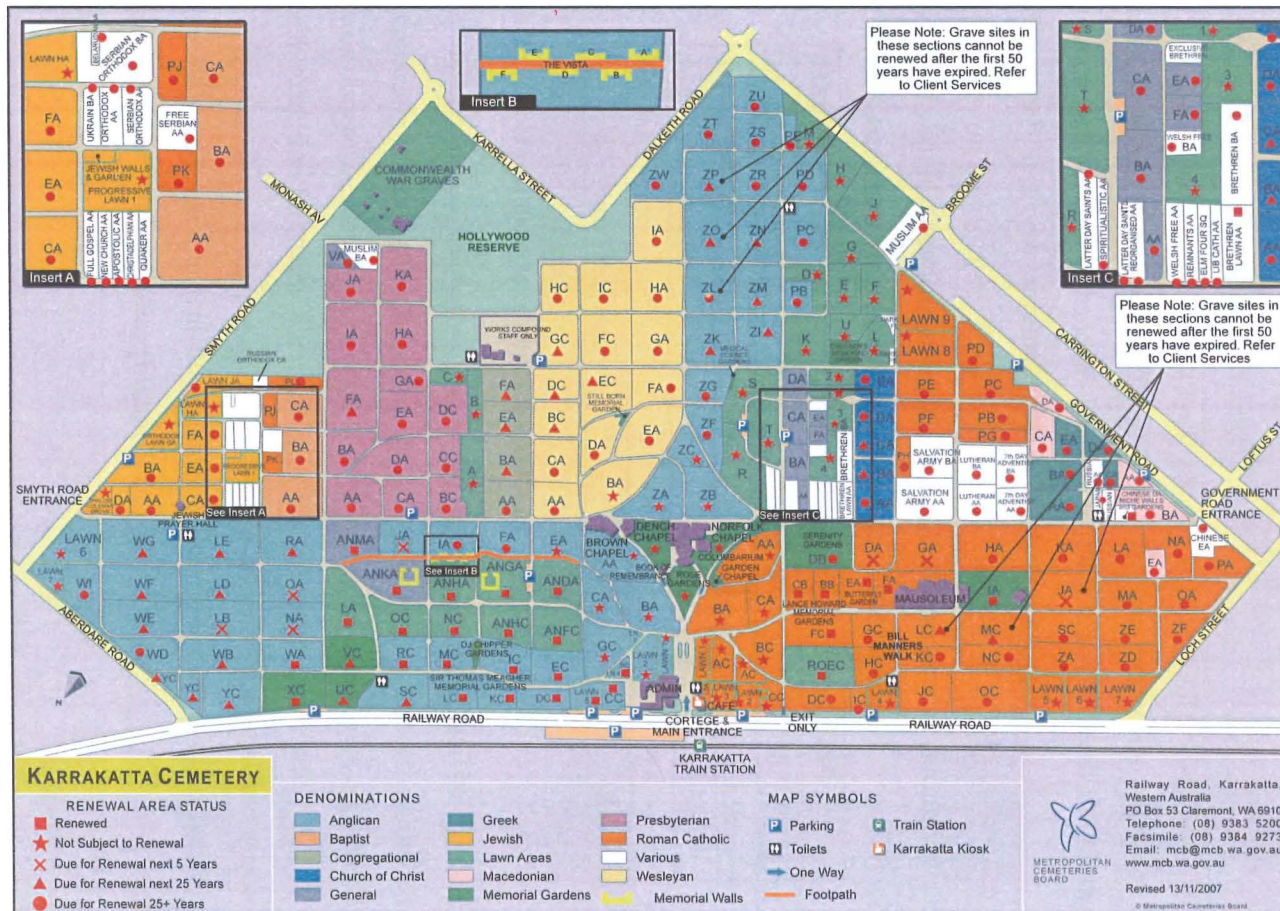


Figure 3.4. MCB visitor map of Karrakatta Cemetery  
 Note the numerous denominational divisions and complex zoning that makes the management of space and growth difficult. (MCB, 2007).

Karrakatta Cemetery was opened in 1899. It is the best-known, largest and certainly best documented cemetery in Perth. It has received the most disposals and has the greatest variety the appearance of its landscape (Figure 3.2). The cemetery was managed by the Karrakatta Cemeteries Board and after 1987 by the Metropolitan Cemeteries Board. As a second generation cemetery's it was planned during the Victorian era and has continually operated through the 'conservative' and into the 'modern' eras. When it was planned, there was only one method of disposal, burial with full monumental plot memorialisation, the situation now is quite different and the full range of methods is available. Karrakatta is the only Perth cemetery operating at capacity and has initiated a renewal program, where the surface of older cemetery sections is cleared and reopened for burial.

*Site & Situation:* 98.2 hectare site located at Railway Rd, Karrakatta 6010. The elevated site is part of Spearwood Dune System and has loose soils with good drainage and was chosen because of its ideal situation halfway between Perth and Fremantle. (Liveris, 1999). It is now surrounded by suburbs.

*Disposal Landscapes:* Karrakatta has a mosaic of all the disposal landscapes. Burial areas with just headstone, burials with full plot memorialisations, lawn burials with various sized headstone, ranging from large to flat plaques.

Disposal Areas	Area (hectares)	% Total Site
Monumental burials	57.6	58.7 %
Lawn burials	16.2	16.5 %
Memorial gardens	5.7	5.8 %
Entombment	0.4	0.4 %
<b>Non Disposal</b>	<b>18.3</b>	<b>18.6 %</b>
<b>Total Site</b>	<b>98.2</b>	

Table 3.1 Table of land use for Karrakatta Cemetery

*Infrastructure:* Operating at capacity the 'non-disposal' can be considered to be the supporting infrastructure, approximately 20%. Significant constructions include the offices, crematoria, mausoleums, café and maintenance works area, all joined by a network roads and footpaths. Car parking is provided outside the site.

*Spatial Organisation:* A grid-like mosaic of denominational and general grounds (Figure 3.4), evidence of a centrifugal internal growth pattern, in the original growth and the spread of renewed areas (Figure 3.3).



### 3.2.2 Fremantle Cemetery



Figure 3.5. Fremantle Cemetery landscape. (Google Earth. Image dated: May 5<sup>th</sup> 2008) The property boundary is marked red.

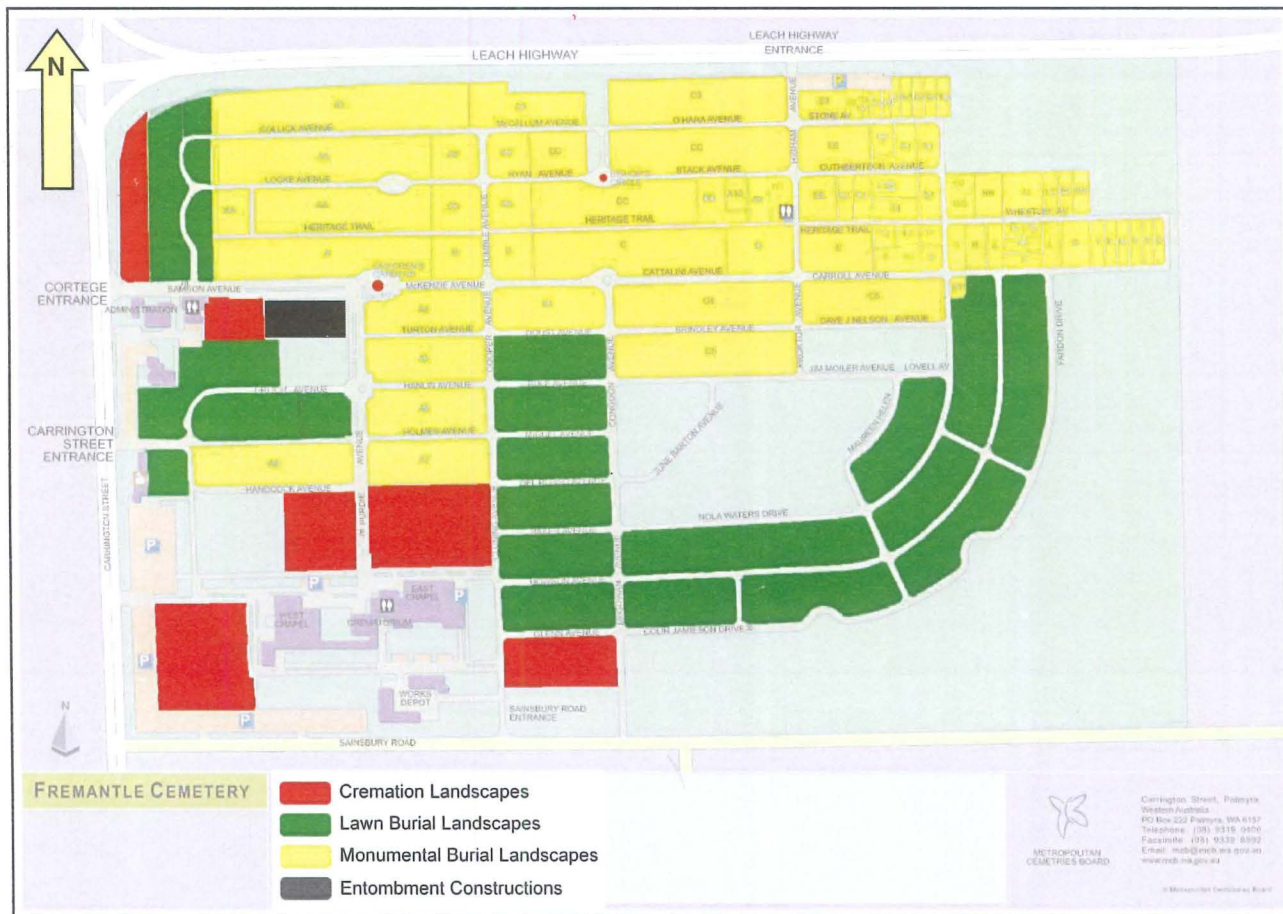


Figure 3.6. Fremantle Cemetery with color coded disposal areas.  
Red – Memorial Gardens for cremains. Green – Lawn areas for burials. Yellow – Monumental areas for burials. Grey – Entombment.



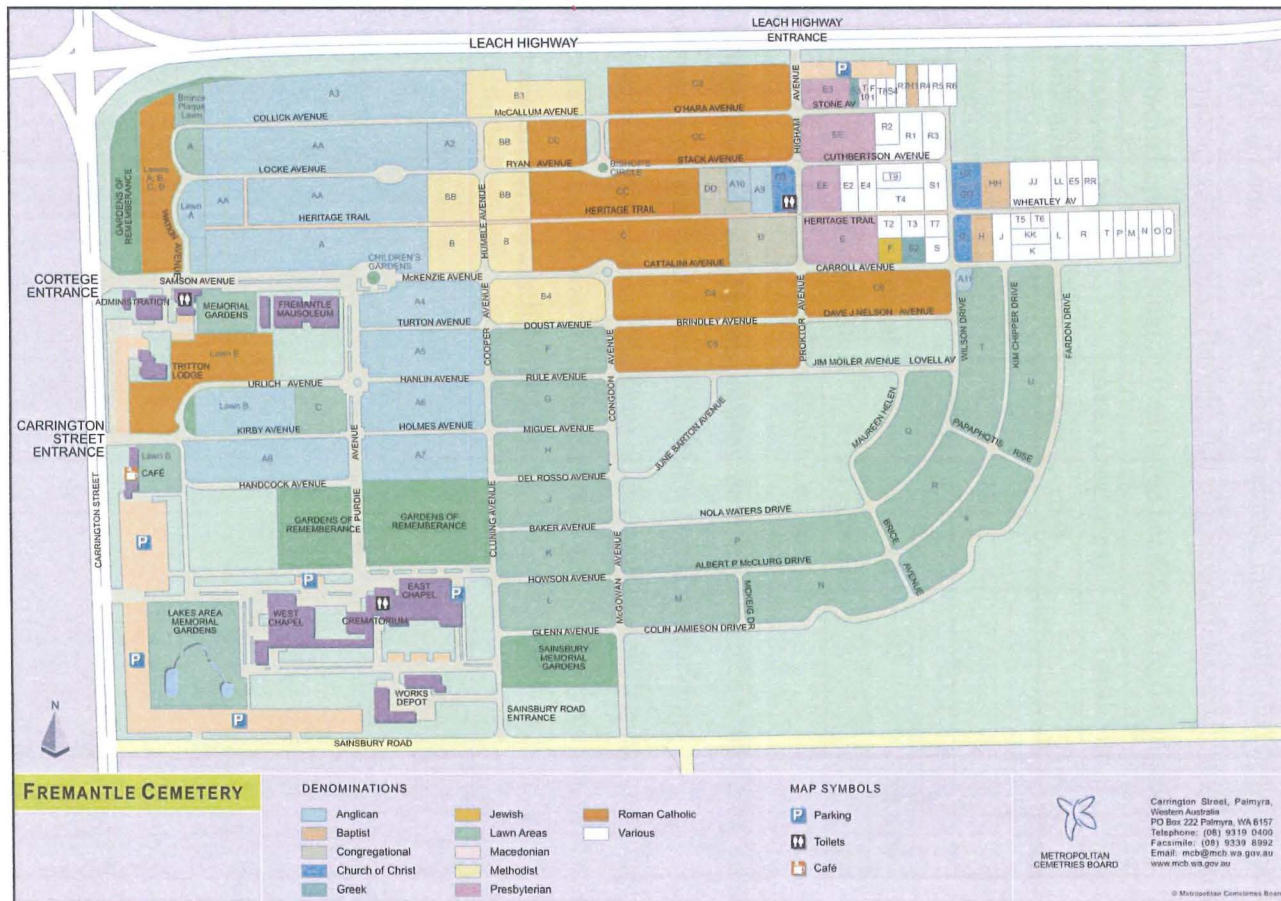


Figure 3.7. The MCB visitors map of Fremantle Cemetery.

Fremantle is the fourth largest site by total area but second if evaluated by the extent of the disposal area. A second generation site designed and operated by the Fremantle Cemetery Board for most of its operational life, it is now managed by the MCB and classed as a regional facility. The full range of disposal options is available here including the award winning Fremantle Mausoleum, opened in 2006. There is some capacity for growth and the undeveloped land is well maintained lawn with scattered trees, with the appearance of urban park land.

*Site & Situation:* 37 hectares on the corner of Leach Highway and Carrington St, Fremantle 6163. This site was originally on the eastern periphery of Fremantle, subsequently entombed by light industrial, residential and recreational land uses.

*Disposal Landscapes:* As with Karrakatta, Fremantle also has a mosaic of all the disposal landscapes. Including Burials, full plot memorialisations, lawn burials with various memorial options, ranging from large headstones to flat plaques.

Disposal Areas	Area (hectares)	% Total Site
Monumental burials	9.6	25.6 %
Lawn burials	5.9	15.7 %
Memorial gardens	2.0	5.3 %
Entombment	0.2	0.5 %
<b>Non-disposal</b>	<b>19.8</b>	<b>52.8 %</b>
<b>Total Site</b>	<b>98.2</b>	

Table 3.2 Table of land use for Fremantle Cemetery

*Infrastructure:* All options, offices, café, maintenance works area, crematoria, mausoleums, path and road access. Limited external car parking.

*Spatial Organisation:* Grid form of arrangements with some curvilinear forms in the newer lawn areas, mosaic of denominational and general grounds, evidence of modified centrifugal growth (Figure 3.7).



### 3.2.3 Midland Cemetery



Figure 3.8. Midland Cemetery Landscape. (Google Earth. Image dated: May 5th 2008)

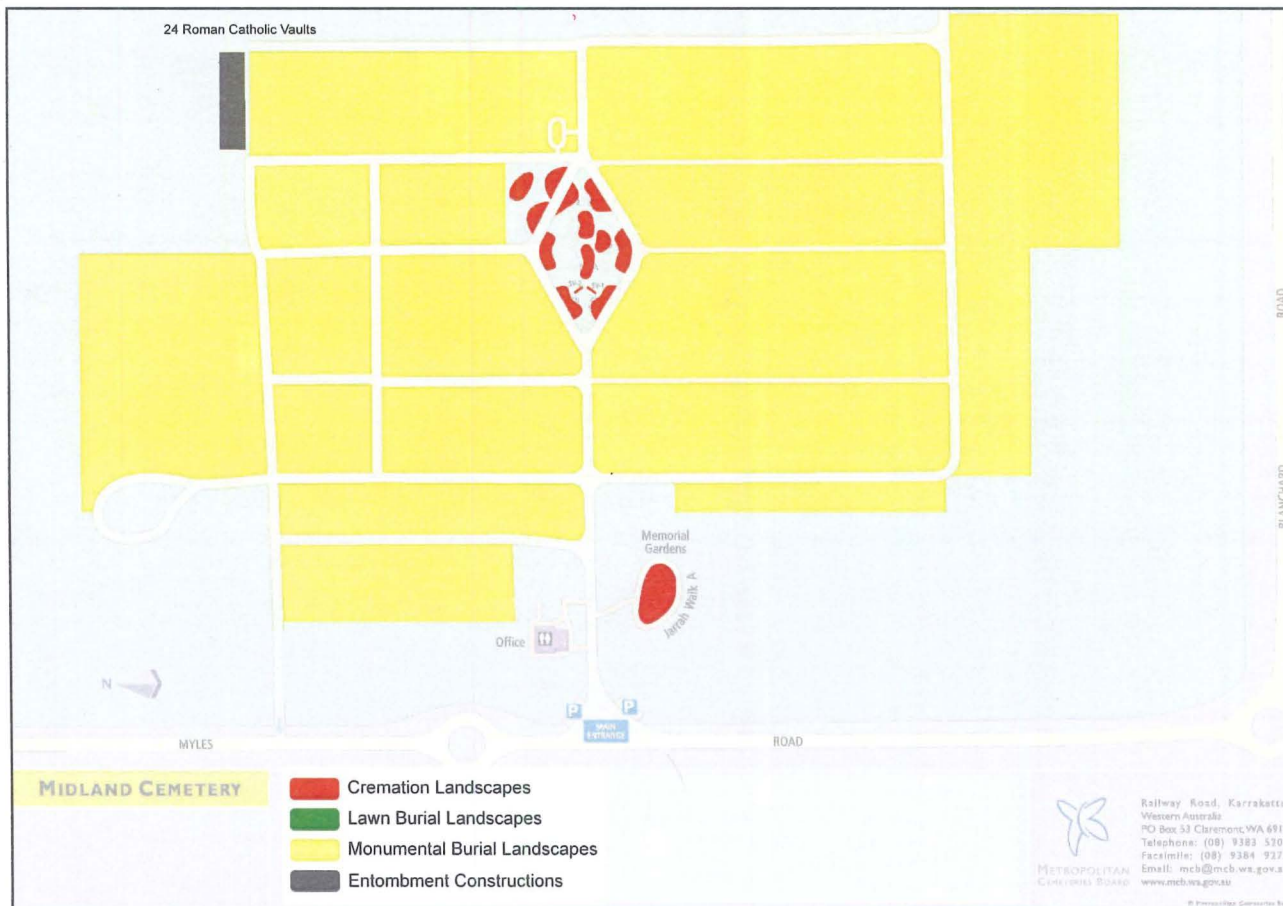


Figure 3.9. Midland Cemetery with different disposal landscapes highlighted. Yellow denotes monumental burial areas, red areas are disposal areas associated with cremation. There is a small vault section.



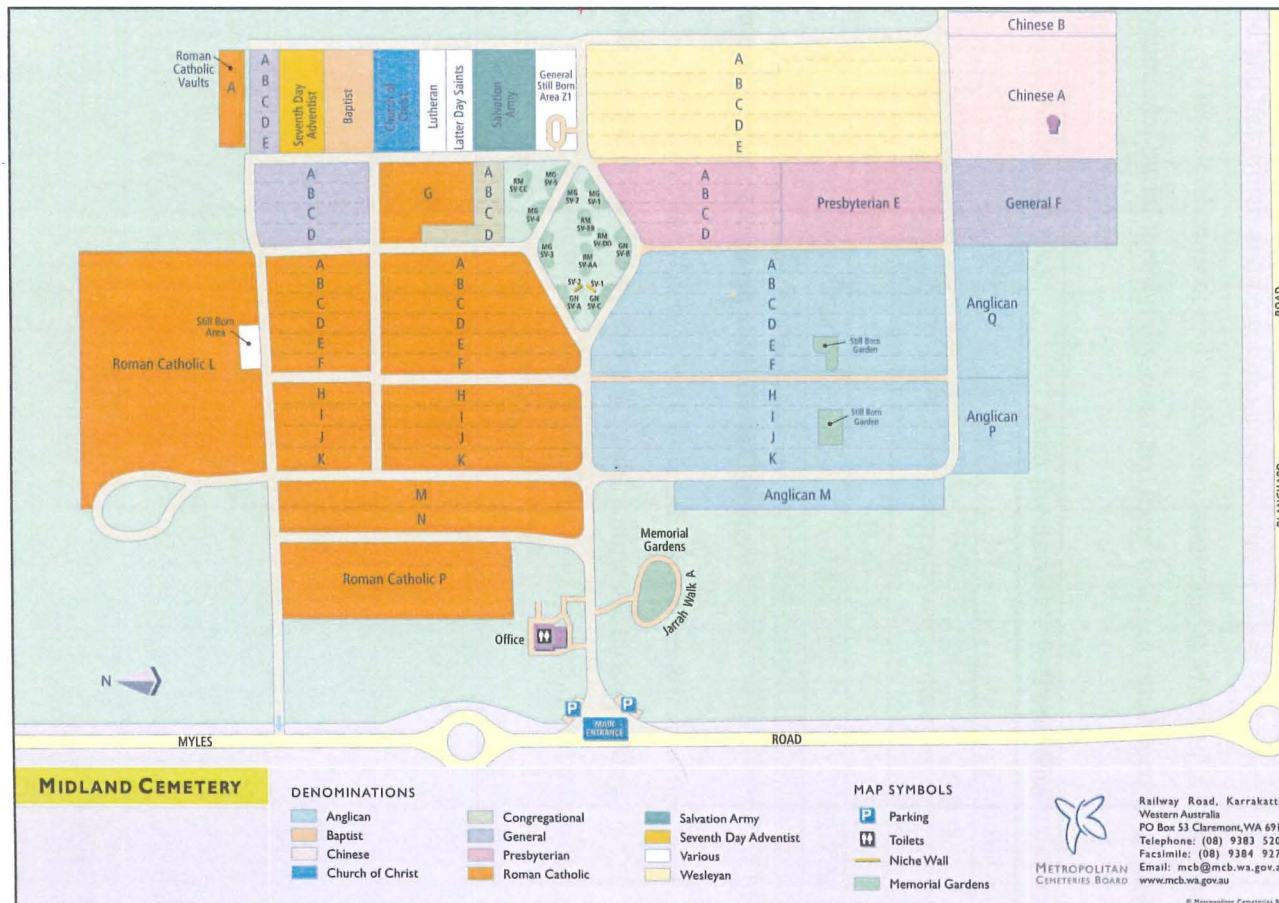


Figure 3.10. The MCB visitor map of Midland Cemetery. Note the traditional denominational layout, with Catholics (orange) on the opposite side of Anglicans (blue) (REFERENCE MCB)

The small facility at Midland is a result of having served a small population for most of its life. As a consequence when the MCB took over management from the Shire of Swan, Midland was classified as a sub-regional site. There is a significant amount of unused land at this site, covered with native bush. This unused space does not equate to surplus capacity and the site is in fact severely constrained by the Bush Forever initiative that prevents the clearing of native bush, despite having previously been allocated as cemetery space (Government of Western Australia, 2009).

*Site & Situation:* 23 hectares on Myles Road, Swan View 6056, 19.5 km north east of Perth. The elevated site was originally situated on an elevated section of the Pinjarra Plain that was once the outskirts of the settlement of Midland. Over time Midland has grown and now surrounds the site.

*Disposal Landscape:* The disposal landscape at Midland is dominated by full monumental burial memorialisations and there is also a small section of memorial gardens.

Disposal Areas	Area (hectares)	% Total Site
Monumental burials	3.9	17.0 %
Lawn burials	0.0	0.0 %
Memorial Gardens	0.07	0.3 %
Entombment	0.25	1.0 %
<b>Non-disposal</b>	<b>18.8</b>	<b>81.7 %</b>
<b>Total Site</b>	<b>23.0</b>	

Table 3.3 Table of landuse at Midland Cemetery

*Infrastructure:* There is very little infrastructure, just an office, mausoleum, toilets and the connecting paths and roads. Limited external parking

*Spatial Organisation:* Denominational and general, grid pattern and evidence centrifugal growth from the central point.



### 3.2.4 Guildford Cemetery



Figure 3.11. Guildford Cemetery Landscape.  
[Google Earth. Image dated: May 5th 2008]



Figure 3.12. Guildford cemetery with highlighted disposal areas. Yellow for monumental burial sections, red for cremains, grey for entombment. There are no lawn sections.



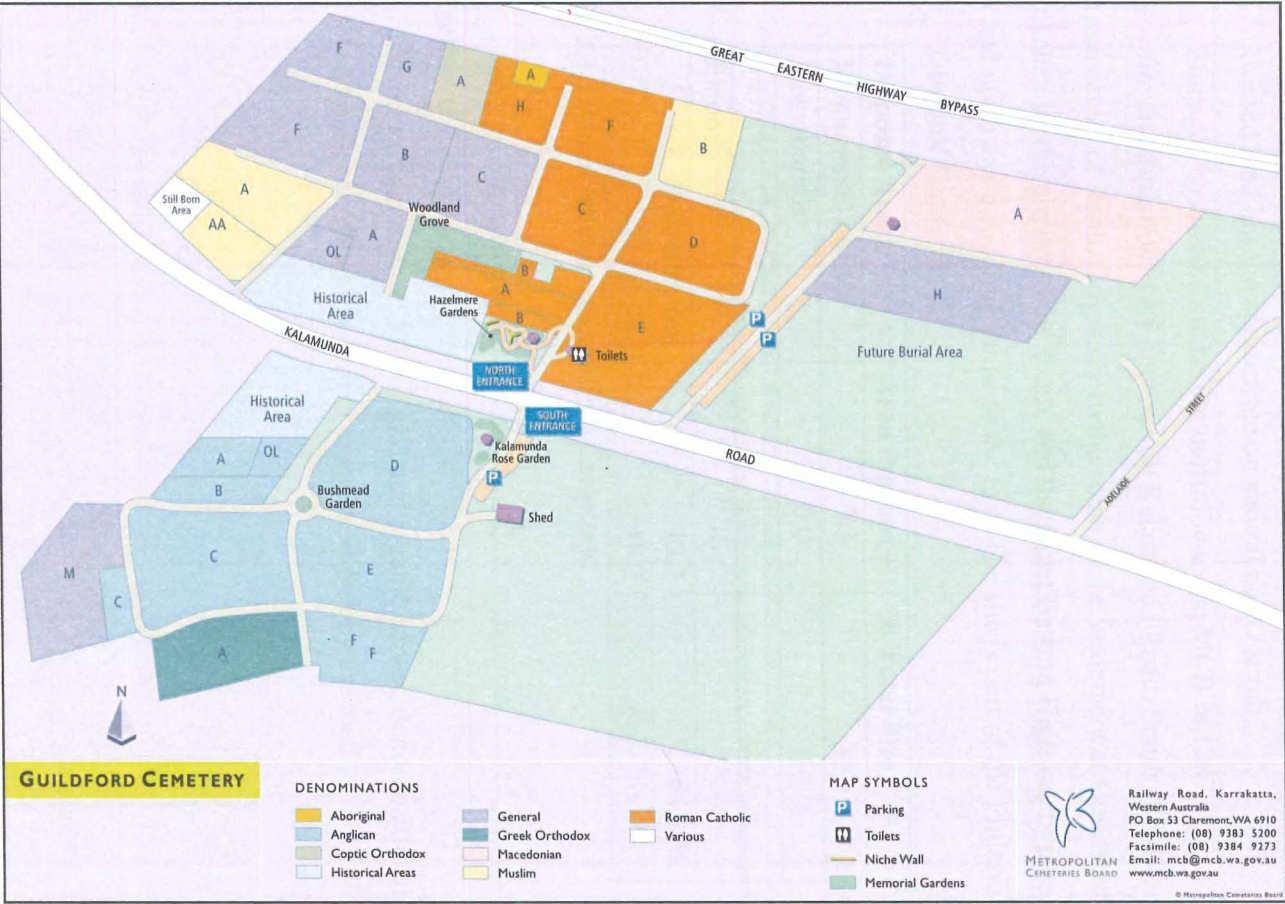


Figure 3.13. MCB visitor map of Guildford cemetery showing land usage allocations. Contains both denominational and general burial areas

The Working Cemetery report suggested the interruptions to services from the adjacent airport make the site unsuitable for development into a more fully featured site such as Fremantle. Despite this a mausoleum with 168 spaces was built in 2003 to accommodate the cultural needs of certain sections of the community. Examination of the tombstone reveals that certain sections of the community is a reference to Greek, Macedonian and other European groups.

As with Midland much of the land on this site is restricted under the Bush Forever scheme, giving it the appearance of more capacity that is really the case.

Disposal methods: Burial and entombment options are available, no crematorium but has a memorial garden.

Unused land has the appearance on natural bush / scrub

Managed by Swan shire before transition to the MCB in 1987

*Site and Situation:* 19.7 hectares on Kalamunda Road, South Guildford 6055, 12 km from center of Perth. Originally to the south of the settlement at Guildford, now encroached by the airport to the south, and the Great Eastern Highway bypass to the west and north and a shooting range to the east. The site is part of the Pinjarra Plain.

*Disposal Landscapes:*

Disposal Areas	Area (hectares)	% Total Site
Monumental burials	6.3	32.0 %
Lawn burials	0.0	0.0 %
Memorial Gardens	0.05	0.25 %
Entombment	0.70	3.5 %
<b>Non-disposal</b>	<b>12.7</b>	<b>64.2 %</b>
<b>Total Site</b>	<b>19.7</b>	

Table 3.4 Table of landuse at Guildford Cemetery

*Infrastructure:* Mausoleum, carpark, office, maintenance shed, connecting roads and paths.

*Spatial Organisation:* Mix of grid and organic curves, denominational and general sections, centrifugal pattern of usage modified by the road.



### 3.2.5 Pinnaroo Valley Memorial Park



Figure 3.14. Pinnaroo Valley Memorial Park Landscape.  
(Google Earth. Image dated: May 5th 2008)

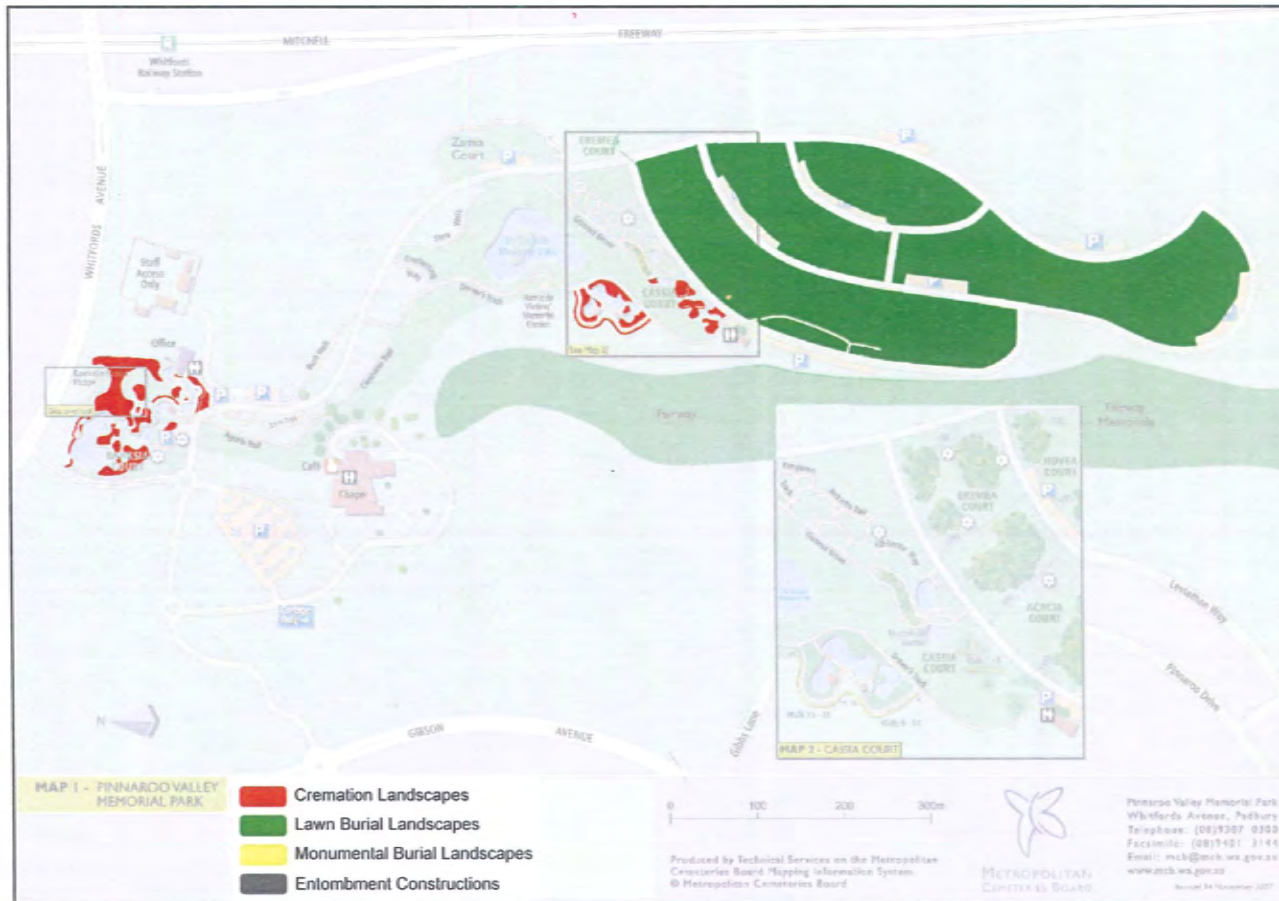


Figure 3.15. Map of Pinnaroo Regional Memorial Park with highlighted disposal areas. Green denotes lawn burial areas, red show memorial areas for those who are cremated before disposal.





Figure 3.16. MCB map of Pinnaroo showing the spatial arrangement and land use divisions.

Opened in 1978, Pinnaroo is intended to be the regional facility for this area for many years to come. Originally under the management of the Karrakatta Cemetery Board and later the Metropolitan Cemeteries Board this was the first of the third generation of cemeteries. Pinnaroo makes extensive use of lawn sections, with flat memorial plaques giving it a park like appearance, and native species are permitted.

The unused land has the appearance of native bush

*Site & Situation:* 91 hectares, Whitfords Avenue, Padbury 6025. Situated in an undulating valley, oriented in a strip running alongside the Mitchell Freeway, 19km north of Perth and 6km south of Joondalup. As part of the Spearwood dune system the soil has good drainage but is loose. There has been extensive retention of the native flora and fauna.

*Disposal Landscapes:* Burial and Cremations, not entombments. There are a wide variety of memorialisation options in the memorial gardens but only flat plaques are permitted in the lawn areas.

Disposal Areas	Area (hectares)	% Total Site
Monumental burials	0.0	0.0 %
Lawn burials	9.8	10.0 %
Memorial Gardens	0.9	0.9 %
Entombment	0.0	0.0 %
<b>Non-disposal</b>	<b>79.8</b>	<b>88.1 %</b>
<b>Total Site</b>	<b>90.5</b>	

Table 3.5 Table of land use at Pinnaroo Valley Memorial Park

*Infrastructure:* Crematoria, chapel, cafe offices, and maintenance works area. There is a large internal carpark and well-paved roads providing access to all areas. There is significant landscaping, including the extensive use of water features. Crematoria was added in 2002, along with a chapel complex and café.

*Spatial Organisation:* It works with nature rather than trying to conquer it and replace it with a version of an English garden. The layout of roads is a reflection of the surrounding suburbs and their traffic calming loops and curves. Pinnaroo is a nondenominational cemetery.



### 3.2.6 Rockingham Regional Memorial Park

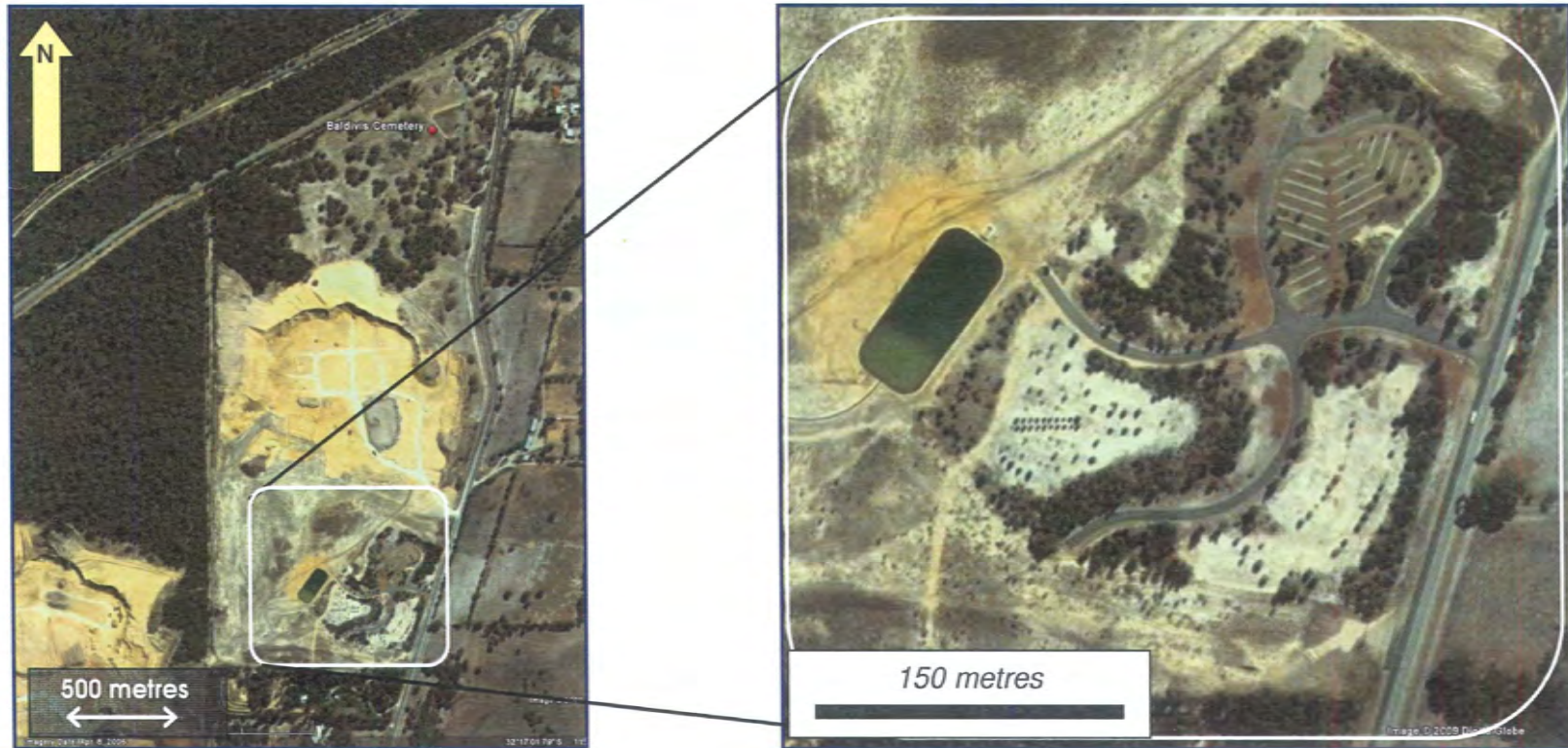


Figure 3.17. Satellite images of Rockingham Regional Memorial Park. Clearly shows the construction works, sand removal and re-profiling. Only a small section of the site is currently being utilised.



Figure 3.18. Rockingham Regional Memorial Park with highlighted disposal landscapes. Lawn burials shown in green and areas for the memorialisation of cremains in red. As at 2008 there had been only 29 burials. Slow start for what is planned as a large regional facility.





Figure 3.19. The MCB visitors map of Rockingham cemetery. Showing the various land uses and spatial layout of the cemetery. Note the pre installation of concrete beams as foundations for small monumental works, and headstones, a departure from the flat plaques of the lawn sections at Pinnaroo.

Opened in 2007 this is the latest addition to Perth's disposal infrastructure. The cemetery has a small operational section with the rest of the site still under construction. There is a substantial re-profiling operation underway to remove the top layer of sand which can make grave digging difficult. In an interview with the PR manager of the MCB it was noted that the new profile was also better suited for Asian customers and a 'Feng Shui' master had been involved in the consultation (A. Fox, MCB, personal communication, October, 2009). Facilities at the site are very limited at this stage but the plans for the future envisage something approximating the facility at Pinnaroo. MCB records show that Rockingham has had just 29 funerals, as at 2008, but does not draw a distinction between cremains and full burials. Onsite verification suggests an even division between the two options.

*Site & Situation:* 60 hectares on Millar Road, Baldivis 6171, with 4.7 hectares currently developed. Situated on the Spearwood dune system in an elevated position it is 36 km south of Perth and 8km due east of Rockingham

*Disposal Landscapes:* There are options for lawn burial or placement of cremains in the memorial garden. The lawn burial areas allow headstones, a departure from the flat plaques of Pinnaroo and there is a choice of six memorialisation options listed for cremains.

<b>Disposal Areas</b>	<b>Area (hectares)</b>	<b>% Total Site</b>
Monumental burials	0.0	0.0 %
Lawn burials	0.3	0.3 %
Memorial gardens	0.01	0.01 %
Entombment	0.0	0.0 %
<b>Non-disposal</b>	<b>59.7</b>	<b>99.5 %</b>
<b>Total Site</b>	<b>60.0</b>	

Table 3.6 Table of landuse at Rockingham Regional Memorial Park

*Infrastructure:* Aside from toilets and a pagoda for shade there is little to see at Rockingham. Car parking is located inside the cemetery and currently occupies more space than the disposal areas. A large reservoir has been built for use with the anticipated water features.

*Spatial Organisation:* Nondenominational, no patterns of growth yet evident,

### **3.3 Interpreting the cemetery landscape**

This section considers the previously described components of the cemetery landscape to identify the major trends, changes or developments that have occurred. Reasons behind these trends and changes are explored in Chapter 4.

#### **3.3.1 Site and situation**

A review of the data for the six survey sites reveals two important observations that confirm the importance of site and situation to the appearance of the cemetery landscape. The first observation concerns the existence of a number of site characteristics that are common to all the cemeteries and give them a similar appearance. This indicates that these characteristics are essential, or at least preferred requirements for a cemetery site. The common features that have the greatest bearing on cemetery appearance are the topography, the soil/ground characteristics and the native flora and fauna.

On-site visits and topographic maps reveal that, with the exception of Pinnaroo Valley Memorial Park, the cemetery sites are all elevated compared to their surroundings. Elevation is most notable in East Perth, Fremantle, Karrakatta and Rockingham, whereas Midland and Guildford are only slightly elevated. Pinnaroo is unique in that it lies in an undulating valley indicating that this criterion for site selection may have changed over time.

With the exception of Guildford and Midland on the heavier soils of the Pinjarra Plain, the other major Perth cemeteries are situated within the more unconsolidated, sandy soils of the Spearwood dune system. Loose sandy soils are generally well drained, except in low lying areas where the underground water table may appear close to the surface. These sandy soils also complicate the digging of graves, and extra measures (e.g. timber to shore up the sides) often need to be taken to avoid collapse of the grave walls (Liveris, 1999). The new cemetery at Rockingham has had the top 2 to 3 metres of sand stripped away, resulting in considerable modification to the surface undulation of this landscape. These changes to the site profile were also intended to minimise difficulties associated with digging in such loose sandy soils.

Increasingly, cemeteries are constructed in the form of a highly landscaped garden, where the flora and fauna contribute to their overall appearance. In particular, the third generation cemeteries are committed to the use of Australian species of plants. Even recent redevelopments on older sites have adopted this practice of introducing

more water efficient native species, rather than the traditional rose bush. It would be remiss not to mention Pinnaroo and its popular kangaroo population that is supported by the substantial remnant bushland. Some visitors are surprised by the tendency of some kangaroos to graze on floral tributes.

The second significant observation is that in the late 20<sup>th</sup> century the addition of two new sites expanded the total capacity of Perth's disposal landscape from 178 to 328 hectares. By comparison, the Subiaco Football Stadium only occupies a rectangular block equal to about 5 hectares.

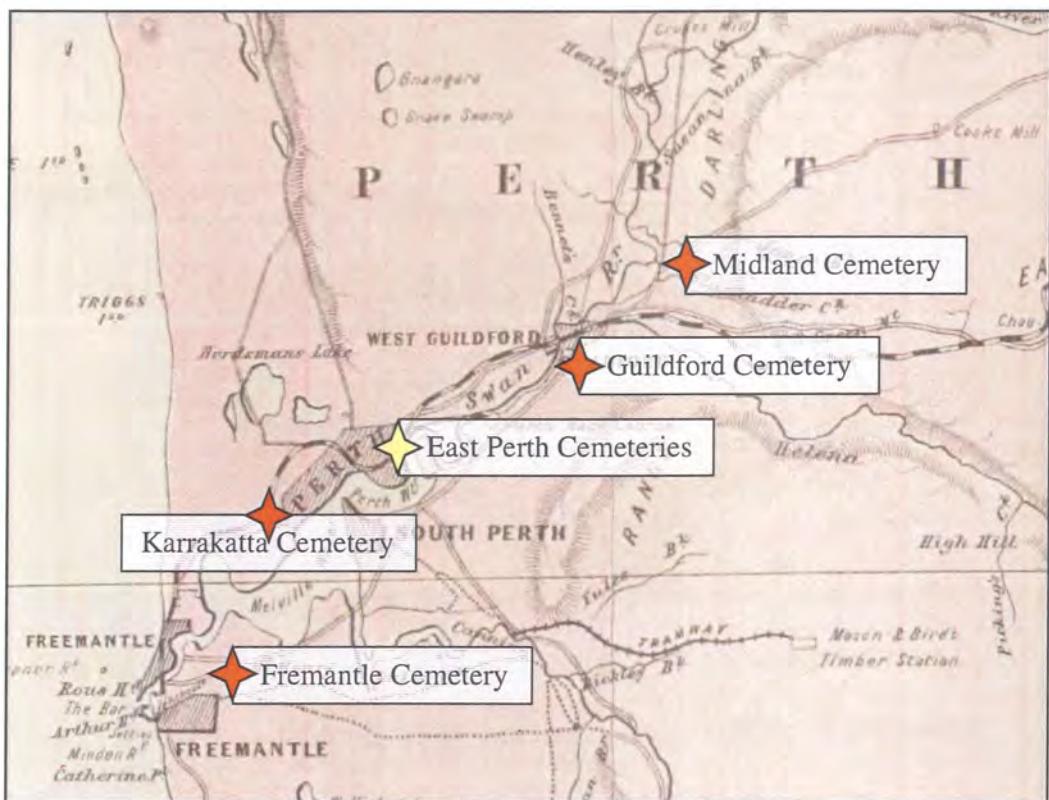


Figure 3.20. 1886 map of the location and size of the Perth and Fremantle communities. East Perth cemeteries are marked in red while the locations of the four second generation cemeteries are marked with yellow. The influence of the river in the pattern of urban development and thus cemetery situation is clear. (McLean, 1886)

An examination of historic Perth maps revealed that in 1886 the proposed locations for the second generation cemeteries were all on the periphery of settlement and that Perth was the largest of these individual centres (Figure 3.20). However, the present situation is quite different. Over time, these settlements expanded and merged as part of the Perth metropolitan region. Cemeteries that were on the periphery of settlement are now surrounded by suburbs (Figure 3.21).



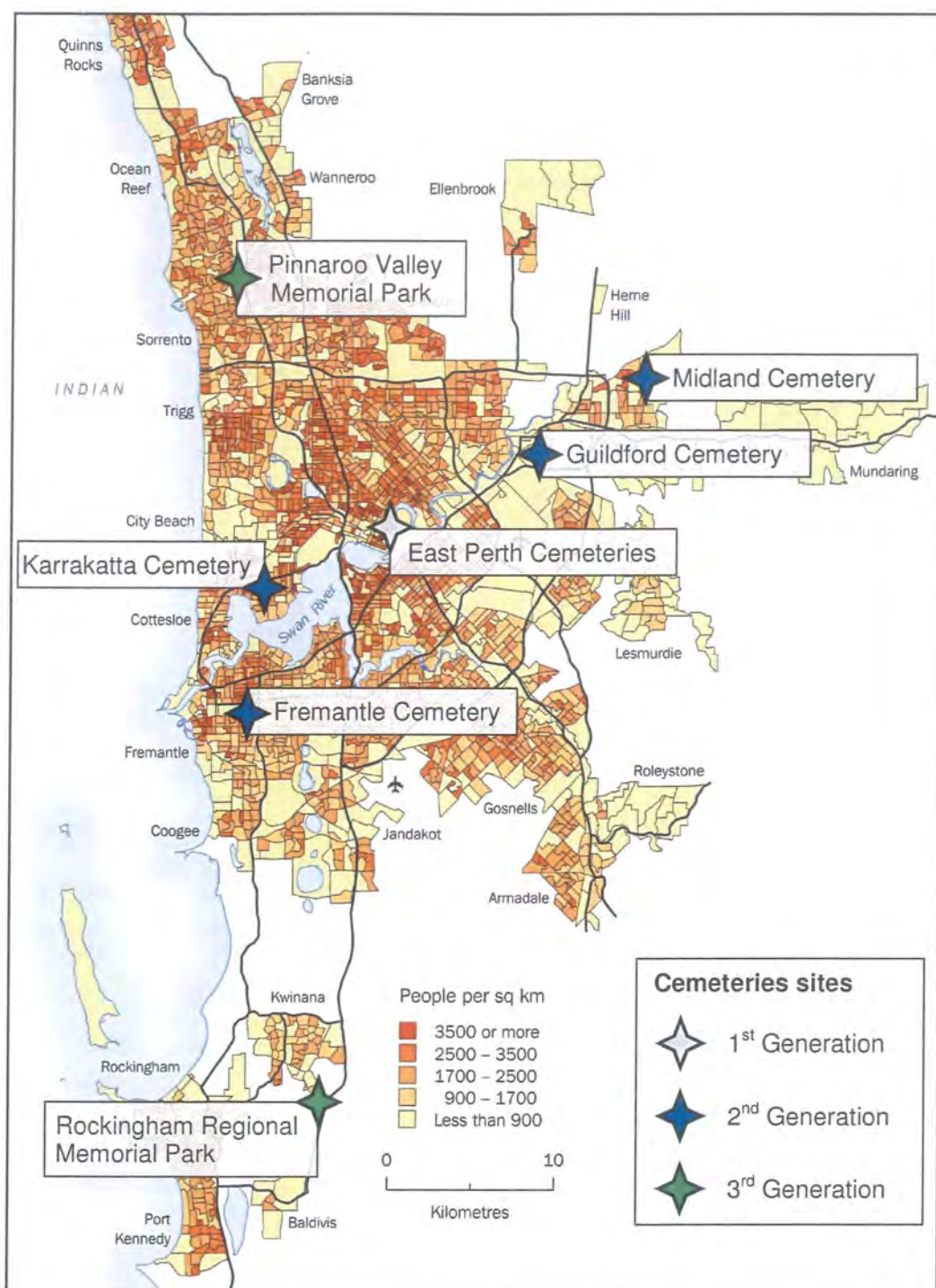


Figure 3.21. Map of population densities in the Perth metropolitan area. Note the correlation between population and cemetery situation. (Australian Bureau of Statistics, 2006). Adapted by D. McDonald.

The two most recent additions follow this pattern and are the furthest from the center of Perth and in line with the 'Corridor Plan' (1970). The plans for these growth corridors included a variety of infrastructure developments, including cemeteries and transport networks.



### 3.3.2 Disposal landscapes

The most significant component of a cemetery's appearance is the disposal landscape. This landscape exhibits a great deal of variation between, and within a cemetery, but can be separated into four main classes: full monumental burial, lawn burial, memorial gardens and tombs. Figure 3.22 shows how the disposal landscape is divided according to these classes in each of the study areas. It also indicates the relative sizes and the potential capacity (i.e. assuming 20% for infrastructure at capacity, as per Karrakatta) (see Appendix).

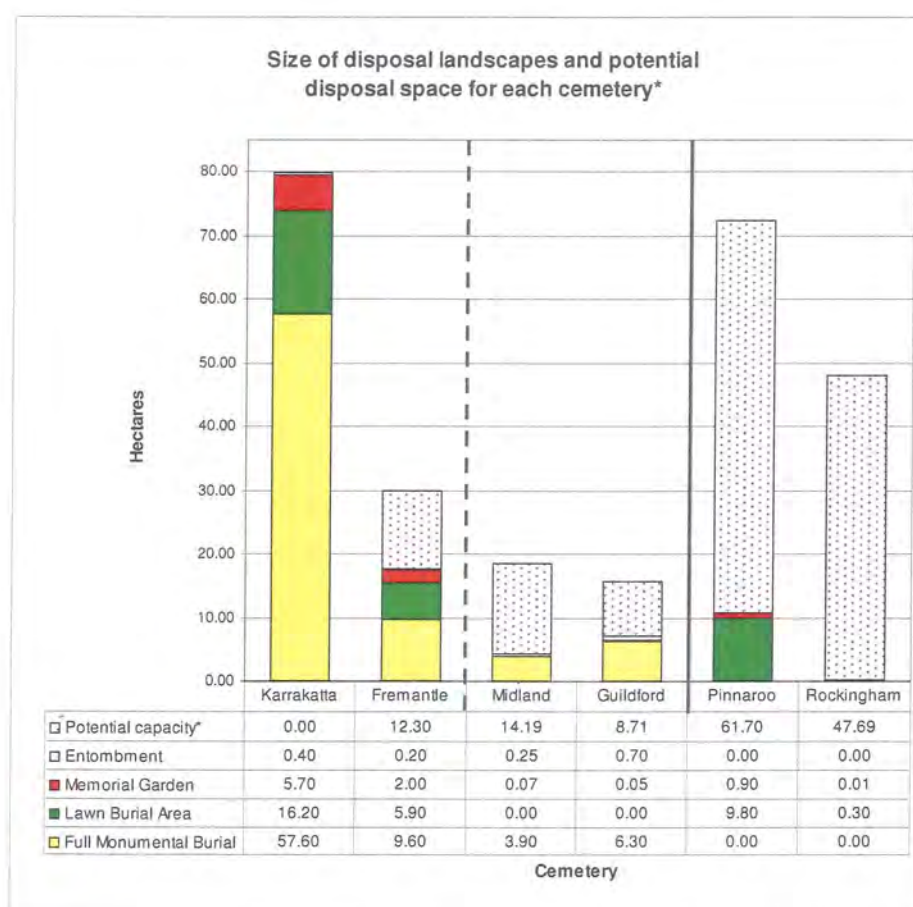


Figure 3.22. Graph indicating the total area occupied by the four disposal methods. Note the shaded area showing potential disposal land at each cemetery.

\*assuming that at capacity approximately 20% of the total site is required for infrastructure as per Karrakatta Cemetery (MCB, 2008).

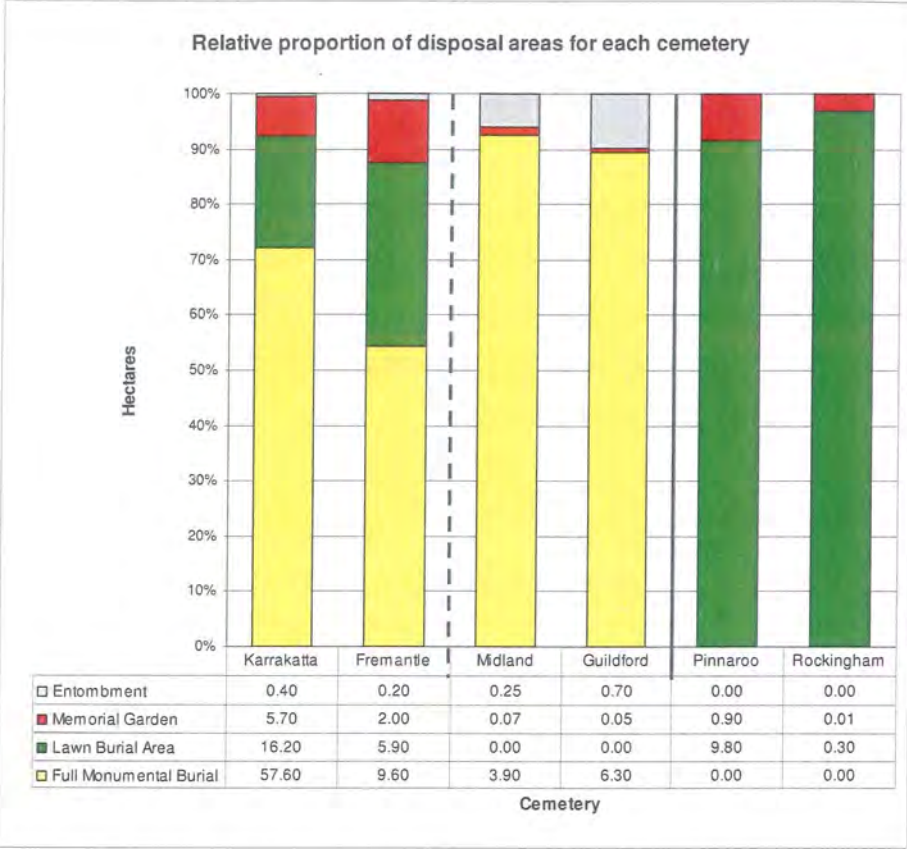


Figure 3.23. Graph of the percentage of land that has been used for disposal at each cemetery (MCB, 2008).

The relative division of disposal landscapes for each site, excluding infrastructure and unused land, is given in Figure 3.23. Three distinct patterns emerge in the form of the mixed disposal landscapes of Karrakatta and Fremantle, the exclusive use of monumental plots for burial at Guildford and Midland, and the predominance of extensive lawn areas and no full monumental plots in Pinnaroo and Rockingham.

In the following section satellite imagery is used to depict the various disposal landscapes, and to illustrate the differences in their appearance and history of disposal practice.



### 3.3.2.1 Cremation landscapes (memorial gardens)

In 1937, the introduction of cremation at Karrakatta created a new form of disposal landscape, the memorial garden, and added crematoria to the list of constructed infrastructure. Cremated remains (cremains) can be disposed or stored outside the cemetery (e.g. scattered at a special place, or kept on the mantelpiece) an option taken by approximately 40% of people (Western Australia Cemeteries Working Party, 1987). Alternatively the cremains may be buried in a grave but the preferred option is placement in a memorial garden in conjunction with a memorial.

The design of memorial gardens has changed over time, with recent trends towards a more natural appearance and free flowing contours (see Figures 3.24 – 3.26). Not long after the introduction of cremation, the range of memorialisation options for cremains began to increase dramatically. Initially, ashes were placed in an urn wall, or scattered over a section of garden, and the location memorialized with a plaque. While ashes can still be scattered, the choices for container placement have expanded along with styles of memorialisation (e.g. plaques, commemorative furniture, rock features, bridges over water features and paths.)



Figure 3.24. Memorial garden at Karrakatta cemetery. Constructed as a place for the disposal of ‘cremains’. These older, structured gardens represent the design principles popular at the time. Under current usage guidelines, these areas can handle 8 times of disposal as a similar sized burial area.





Figure 3.25. Memorial gardens adjacent to the crematorium at Fremantle. A typical style of memorial garden at Fremantle Cemetery used to house urns and memorial plaques for scattered ashes. Note the structured, organised gardens that are a more ornate version of the burial areas.



Figure 3.26. 'Banksia Court' Memorial garden at Pinnaroo. One of two large memorial gardens at Pinnaroo Valley Memorial Park used to house urns and memorial plaques. Contemporary organic shapes create an aesthetically pleasing and tranquil environment and a high-density method of the disposal of cremated remains.

### **3.3.2.2 Evolution of Burial Landscapes**

Evolutionary change in burial landscapes began with the introduction of a lawn burial area at Karrakatta in 1942. Previously, full monumental plots were the only option, and as a consequence, occupy large portions of Karrakatta and Fremantle, and most of Guildford and Midland (Figure 3.27 and 3.28). This type of burial area is notably absent from the newer facilities at Pinnaroo and Rockingham. The spatial organisation of monumental plots has remained relatively consistent through time, with a characteristic tendency towards a rigid grid pattern. Some variation in style for individual plots is evident, but this aspect would require detailed examination and is beyond the scope of this study.

More relevant to the overall cemetery appearance are the changes to the spatial organisation of lawn cemetery areas. The significant changes include the orientation of graves and the size of memorialisation. Until the 1970s, lawn sections were arranged head to toe with thin walkways in between rows of large and ornate headstones. Later, the graves were laid out in a head-to-head arrangement which doubled the space between rows. Concurrently there was a trend towards a reduction in the scale of memorialisation. This change started with a move from full monumental plots to headstones, and continued with a gradual shift from tall and large headstones to much smaller and lower forms. Most recently, at Pinnaroo only a small flat plaque is displayed which does not protrude above the lawn (Figure 3.29 – 3.31).





Figure 3.27. Full monumental plots at Karrakatta Cemetery. (Google Earth image dated 5/5/2008) A typical burial area with the full plot monumentalisation that was the standard until the advent of the lawn areas in 1942. Note the dry, sandy appearance. These areas are not reticulated as this promotes plant growth and given the intricate nature of the monumental works and the large area involved maintenance costs would be prohibitive.



Figure 3.28. Poorly maintained full plot section for ‘various’ groups at Fremantle.





Figure 3.29. Lawn burial areas, first used in 1942 at Karrakatta.  
Density is comparable to earlier arrangements but gains were made in maintenance costs as a mower can now pass between memorials. The green lawn sections compare favorably to desolate monumental sections and are considered a more aesthetically pleasing and peaceful landscape.



Figure 3.30. Lawn burial areas with a 'head to head' arrangement.  
Adopted in the 1970's, the arrangement of graves in a 'head-to-head' pattern gives comparable densities while increasing access, which reduces maintenance costs and creates a more open environment. The space between memorials is doubled and larger and more efficient machinery can be used.





Figure 3.31. The lawn cemetery areas at Pinnaroo.

This form achieves comparable density of plots but the memorialisation has been reduced to a flat plaque to allow for further improvements in maintenance efficiency. Now mowers can pass straight over memorials. The image is the same scale as the others but the nature of the landuse is not readily apparent. Also notable are the curved, organic design elements



Figure 3.32. A mosaic of burial landscapes types at Karrakatta.

Cemetery practice is to develop a number parcels of land. Over time, different techniques are applied and a patchwork of various disposal landscapes appears.



### 3.3.2.3 Renewed landscapes

Unique to Karrakatta are the renewed landscapes shown in Figure 3.33. These areas were once old monumental burial area. After a period of public consultation, as the renewal process retains some graves for 'historical reasons', the memorials are cleared, but the bodies left in situ. These areas are then reopened for to receive disposals and become a modified version of a monumental, lawn or memorial landscapes. The long white strips are pre laid concrete beams that provide a stable foundation for the future erection of memorials. Renewal offers a way for cemeteries to continue operations after they have reached capacity, without renewal Karrakatta would have closed for burials before the end of the 20<sup>th</sup> century.



Figure 3.33. Areas transformed by the renewal program at Karrakatta.

### 3.3.2.4 Entombment

Entombment is a disposal method with a long history in other countries but a recent addition to the range of choices for the people of Perth. It can be thought of as a type of above ground burial, placing the whole body in a coffin-like crypt. The mausoleums are of a high quality fit and finish and contain a series of crypts that are housed in both inside and in the open. It is clear from simple observation and from the pricing structure that these facilities cater to a wealthier section of the market.

However, unlike the significant portions of land used for burials or disposal of cremains, these mausoleums only occupy a very small fraction of the land and accommodate less than 2% of the total funerals in Western Australia per year (MCB Financial Data, 2008). The impact of mausoleums on the total appearance of the cemetery is relatively minor, due to the small amount of area and low number of disposals, and accordingly they will be considered as part of the built infrastructure of a cemetery and will be dealt with briefly.



Figure 3.34. Aerial view of the mausoleum at Fremantle Cemetery.

### 3.3.3 Infrastructure

Infrastructure has increased over time, as both the number of cemeteries and range of services has grown. New cemeteries, like Pinnaroo, have been designed with internal parking, while older, second generation cemeteries (e.g. Karrakatta) have parking space allocated outside the grounds. In terms of space occupied, the most significant constructions are administration offices and disposal related facilities, such as crematoria and mausoleums. The use of ornamental landscaping and water features is more widespread in Pinnaroo, and in new developments in the older cemeteries (e.g. Fremantle). Karrakatta has no water features as it was close to capacity at the time when these were first being considered in the planning for Pinnaroo (Liveris). The cemeteries at Fremantle, Karrakatta and Pinnaroo have also reached a scale of operation that attracts enough visitors to support outsourced cafes.

Karrakatta is operating at capacity and has approximately 80% of the land dedicated to disposal. The remaining 20% is used for the entire supporting infrastructure. While new designs and future infrastructure may alter this figure slightly the 80/20 disposal to infrastructure landscapes can be used as a guide for calculating future capacities at other sites (see Table 3.1).

### 3.3.4 Spatial organisation

Maps and satellite imagery reveal three main aspects of spatial arrangement in cemeteries: increased use of general (as opposed to denominational) disposal areas, a pattern of internal growth, and the layout of the landscape components. The Karrakatta Cemetery visitor's map in Figure 3.4 depicts a complex denominational zoning, with 14 denominations in 39 separate areas as well as general areas (Liveris, 1999). In the two newest cemeteries this practice has been discarded and only inscriptions on memorials provide a clue to the religious beliefs of the deceased.

The cemetery centre, or core, has the most decorative and attractive landscapes. Initially a cemetery grows from its centre outwards until capacity is reached, as in the case of Karrakatta. This trend is then followed by renewal programs that create the distribution of renewal landscapes (Figure 1.3). Francaviglia (1971) commented on the 'striking' similarity between city and cemetery growth models. In the present study, the second generation cemeteries appear to follow a modified centrifugal growth pattern, expanding from the centre outwards. Maps of these areas clearly show where a cemetery has not yet reached capacity the existence of vacant land furthest from the



centre. For example, this pattern of growth is evident in the position of lawns and renewed sections at Karrakatta. Lawns are closer to the perimeter as these areas were only introduced after 1942. The renewed sections, a result of a process that has been applied to the oldest sections, are located near the core and at the front (see Figure 3.3), as would be expected with this growth model. This naturally places a lower value on areas that are more distant from the centre, as is seen in the poorly maintained area (labelled 'various') at Fremantle (Figure 3.28). The third generation cemeteries, particularly Pinnaroo, follow a more elongated, asymmetrical pattern, expanding along the serpentine pathways that follow the contours of the land. However, the Pinnaroo property boundary is long and narrow and gives few other options for expansion.

The transition from second generation to third generation cemeteries shows a change in layout from a rigid grid pattern to more free-flowing, organic curves. This change suggests that planning of cemetery layout has a tendency to reflect broader planning and design principles applied in adjacent suburbs from the same period (Figure 3.35).

This descriptive account of Perth cemeteries in time and space is followed in Chapter 4 by an analysis of the cultural context driving the observed landscape changes.





Figure 3.35. Cemetery design now favours curves and a more organic form. This situation mirrors contemporary suburban residential design and is related to traffic calming techniques.

## CHAPTER 4: EVOLVING CULTURAL LANDSCAPES

Before discussing developments in cemetery practice and how these are influenced by cultural change in Perth, it is necessary to understand the important role of the ‘gatekeeper’ of the cemetery landscape. The relationship between cemetery landscape and culture is largely interpreted and mediated by the authorities that control cemeteries and decide what is permissible. In the early colonial period, the East Perth Cemeteries were controlled by boards that represented each of their respective churches (Liveris, 1999). Four cemeteries opened at the turn of the 20<sup>th</sup> century: Midland and Guildford were managed by the Shire of Swan, while the larger cemeteries at Fremantle and Karrakatta were placed under the control of two separate boards (Karrakatta Cemetery Board, Fremantle Cemetery Board). Pinnaroo, opened in 1978, was initially managed by the Karrakatta Cemetery Board. In 1987 a government-funded study into the state of Perth’s disposal infrastructure, *Cemeteries Working Party Report*, recommended centralising control of administrative functions under one management authority, the Metropolitan Cemeteries Board (MCB). The decision was justified by the elimination of duplication, expected gains in efficiency, reduced operational costs and the provision of a more appropriate centralised platform for the effective coordination and planning of the city’s needs. (Western Australia Cemeteries Working Party, 1987).

The MCB and its predecessors has a clearly outlined mission that defines their responsibility to the public: to provide dignified, culturally appropriate facilities for burial, cremation and commemoration (MCB, 2009). The phrase ‘culturally appropriate’ is significant as this implies that the MCB are to be responsive to demands from the increasingly culturally diverse population of Perth. A more diverse society has a wider set of demands and the MCB must respond by changing their range of services and products, i.e. cemetery practice must change to suit the population; for example, make allowances for different religions and cater to peoples’ environmental concerns. Most importantly, the MCB’s mission advocates for flexibility in cemetery practice. Such flexibility is expressed in the resultant diversity in cemetery landscapes.

Despite having a ‘monopoly’ on the final disposal locations of the deceased, the MCB must not only meet its mandated objectives but must do so in an operational environment that is constrained by legal, financial, and spatial factors. Within these constraints, the MCB offers a range of disposal services which that in turn dictate cemetery practice, infrastructure requirements, and specific management protocols.

The geographic focus of this research precludes in depth analysis of the inner workings of the MCB, but it is worth emphasising that the MCB is bound by a number

of laws and regulations. In addition to standard employment and public liability laws, the MCB is bound by the following legislation: *The Cremations Act 1929* and *The Cemeteries Act 1986*. Liveris (1999) frequently refers to the legal motivation behind many decisions, particularly the need to conform with the two Acts and public liability insurance policies (related to the dangers of poorly maintained monumental works).

Financial considerations are also a major factor influencing many of the MCB's decisions, as emphasised by Liveris (1999, p.260):

In line with all other quasi-government bodies, the MCB also operates along commercial lines and uses financial policies based on general business principles to provide acceptable standards of service.

The MCB is a non-profit organisation whose operational costs are to be met by the provision of disposal services and sale of memorialisation products. Until 2005, government funds were used for large capital works and land acquisitions (A. Fox, MCB, personal communication, October, 2009). Now revenue from services and products is required in principle to cover the costs of future capital works and land acquisitions. This places pressure on the MCB to utilise the existing land resources more intensively and efficiently in order to avoid other costly options, such as land acquisition. The adoption of general business principles motivates the MCB to constantly improve efficiency, which in turn drives changes to cemetery practice (Liveris, 1999). One particular area of concern is the need to reduce maintenance costs, such as wider access ways for lawn maintenance, and more efficient, usually denser land uses.

While financial matters provide most of the motivation for many decisions, the spatial constraints faced by cemeteries management is also of interest to the geographer. It is possible to identify two components to the spatial constraints that shape cemetery practice. The first component involves the space within a cemetery and its allocation in the most efficient manner. The second is the total area over which the cemetery extends. Descriptions of the six cemeteries in Chapter 3 reveal how the sites have been 'entombed' by surrounding suburbs, and consequently there is no opportunity to expand the size of existing cemeteries. Moreover, the historical record shows that cemeteries tend to lose land from excision by local government for other purposes (Liveris, 1999).

The rationale behind most MCB decisions is straightforward and directed towards changing cemetery practice in order to meet its obligations to the public, whilst efficiently using its space and financial resources. However, the operational constraints that influence cemetery practice are not static, and may vary at different stages in a

cemetery's lifecycle. For example, new cemeteries have large spacious grounds, but an initially limited income stream. It is reported that it took Pinnaroo 10 years to become self supporting (Western Australia Cemeteries Working Party, 1987). Over time, it is likely that all cemeteries will move through a cycle in which priorities may alternate between financial planning and the need to confront spatial constraints.

A full explanation of the MCB's interaction with the Perth community is unwarranted. In brief, the MCB maintains a dialogue with the leaders of all the organised religions and ethnic groups (A. Fox, MCB, personal communication, October, 2009) and is lobbied by others that are seeking certain practice changes, such as the Cremation Society or The Natural Earth Burial Society of Australia. The MCB is comprised of members of the community who have a general awareness of social expectations. However, modifications to service offerings are often generated by a dual consideration of community input and adherence to a viable business model. Ideas are also obtained from wider afield by observing best practice and innovation in other cemeteries in Australia and overseas. For example, the now common use of water features that were first included in the design for Pinnaroo was motivated by similar developments in Eastern Australia (Liveris, 1999).



## **4.1 Linking landscape, practice and culture**

Chapter 3 identified significant trends and developments in the appearance of each of the four cemetery landscape components: site and situation, disposal landscape, infrastructure and spatial organisation. This chapter explores how changing practices reflect the desire of cemetery gatekeepers to meet the demands of a growing and increasingly diverse population within operational constraints. With the exception of population growth, changing practice should not be interpreted as the result of direct cause and effect relationships. Rather decisions are made in a complex and dynamic operational environment. Similarly, the cultural factors highlighted in this study may not be solely responsible for driving change.

It is argued that a combination of factors has played a role in influencing cemetery practice and attempts are made to identify some of those factors that have had the greatest influence. Head (2000) acknowledges the complex nature of culture in her framework for the analysis of 'human driving forces' that shape landscape change. The following five classifications were proposed: population change, economic factors, technological change, politico-economic institutions and attitudes and beliefs. In this study, the observable cemetery landscape is examined using the cultural factors from Head's (2000) framework.

### **4.1.1 Site and situation**

Two observations regarding the site and situation of these cemeteries were identified in Chapter 3 to have a bearing on their appearance. First, the six sites share a number of common characteristics that are identifiable in their appearance, and secondly, the role of cemetery situation in determining appearance.

The six cemeteries share a number of site characteristics that provide them with similar elements to their appearance. The basic requirement for a cemetery is that it is above the water table; for example, to avoid contamination of the ground water that contributes to Perth's domestic water supply. Other elements are also shared between the sites. Most notably, the sites are positioned on elevated parts of the landscape such as hilltops. While an elevated site offers protection from flooding, hilltop sites are an important consideration in site selection as prescribed by the predominantly Judeo-Christian religious beliefs of the population (Francaviglia, 1971).

An interview conducted with A. Fox, MCB's public relations manager, revealed how the increasingly multicultural composition of Perth's population has influenced

change to site selection criteria, particularly the preference for hilltops. Judeo-Christian beliefs had a significant influence in the selection of a preferred type of topography (hilltops) in second generation cemeteries. Most recently, the site preparation at Rockingham was preceded by a consultation with Chinese Feng Shui experts to ensure that the cemetery would be sympathetic to people of Asian origin. This example emphasises the importance of cultural diversity in future planning and the form of cemeteries. The selection of a valley site for Pinnaroo also suggests a weakening of Christian influence, and perhaps of religious beliefs in general, in site selection and development. As previously stated, cemeteries are highly constructed landscapes and many of the features of the pre-existing landscape are lost in development, and their impact on the appearance of the site is minimal.

Another important observation from Chapter 3 was the influence of the growth in population and expansion of the metropolitan area on cemetery situation. The number of operational cemeteries increased from four at the turn of the 20th century to six in the present day. This represents an increase in total cemetery area from 178 to 329 hectares, with a corresponding growth in processing and disposal capacity. Population growth is important in explaining the increased number of cemeteries and their choice of location. Perth's population has grown from a modest colonial settlement to approximately 1.5 million people with influences from a wide range of countries and cultures. Successive waves of immigration initially from Britain, northern and southern Europe, later from Asia and the Middle East, and most recently Africa, have resulted in a highly diverse population. The size of settlements in Perth, Fremantle, Guildford and Midland increased during the first half of the 20<sup>th</sup> century until they merged to become the greater Perth metropolitan region; Figure 4.1 population growth in Western Australia between 1829 and 2007. By the 1960's, the relative situation of the second generation sites had changed from a location that was on the periphery of settlement to being located within the boundary of a large city and its suburbs (Gentili, 1979). Contributing to this growth was the increased mobility of the population as transport technology advanced. The effect of these trends was that people of the City of Perth were presented with a choice of cemeteries. Subsequently, people were more likely to make their cemetery selection based on services offered rather than on proximity. Although it should be noted families tend to use the same cemetery. This movement towards greater choice was eventually reflected in the management structure, as the four cemeteries were consolidated under the control of the Metropolitan Cemeteries Board. 1987 marked the beginning of a management approach that treats these cemeteries as part of

in integrated disposal system for Perth, with complementary rather than competing elements.

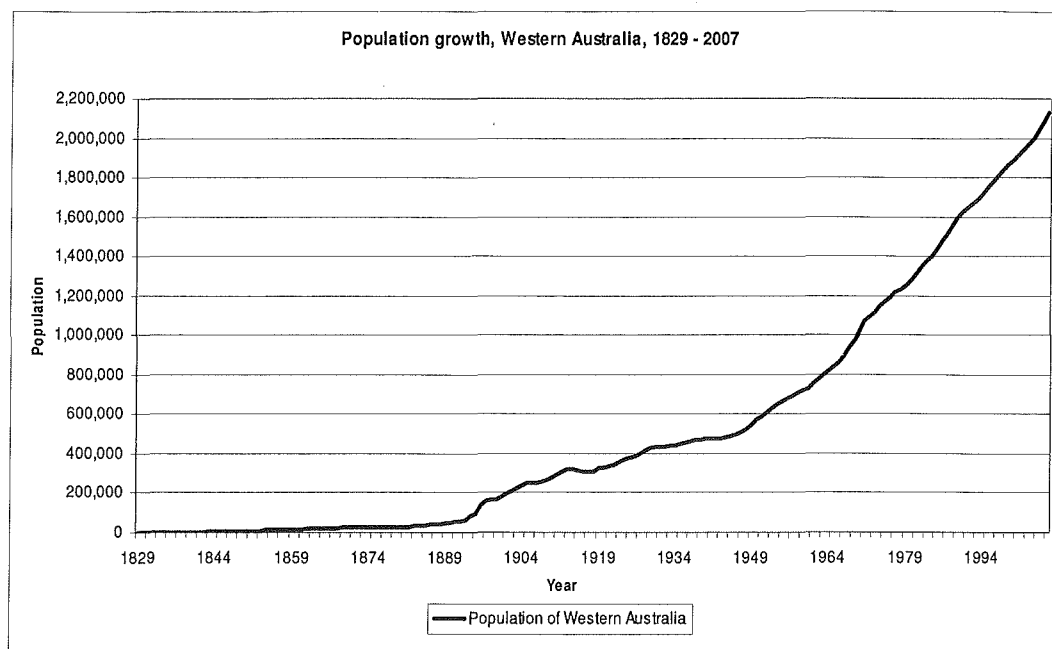


Figure 4.1. Growth of population growth in Western Australia, 1829 – present. There is a direct correlation with the growth in demand for disposal services. Source: BoS 2009

Originally, the second generation sites were intended to operate as separate entities, but in consolidation opportunities have arisen to offer more specialised services. Karrakatta and Fremantle had served larger populations than Guildford and Midland, and as a result were better developed with established crematoria and attractive lawn sections. Therefore, Karrakatta and Fremantle became the natural choice for development into regional sites by the MCB (Western Australia Cemeteries Working Party, 1987). This decision ensured that both sites have subsequently received a greater share of infrastructure developments and funding. As smaller ‘sub-regional’ sites, Guildford and Midland have catered to the more traditional European and Asian communities. A significant segment of people from these cultures prefer full monumental burials and entombment, as reflected in the appearance of these disposal landscapes and associated infrastructure. Such priorities help to explain differences in the morphology of Karrakatta and Fremantle compared to Guildford and Midland. The effect of specialisation is even more pronounced in the third generation sites. Unlike earlier periods, the third generation cemeteries were designed from the outset to be part of a larger disposal system and to focus on the needs of the future generations. These

sites do not offer the more traditional disposal methods, like entombment or monumental burial and exclusively cater for lawn burials and memorial gardens.

#### **4.1.2 Disposal landscapes**

Disposal landscapes are a key component of all cemeteries and are defined as products of the disposal method and memorialisation. The combination of method and memorialisation is expressed in the various types of disposal landscapes that occupy the majority of cemetery space. Two developments have had the most dramatic impact on the appearance of the cemetery landscape: introduction of cremation and its associated disposal area (the memorial garden), and the introduction and evolution of burial landscapes. These developments provide an illustration of change as an important process in cemetery landscapes. Stimulus for change may come from within the cemetery system, or externally from the community, but both parties must accept the idea before it is widely adopted. Demand for cremation came externally from the public and was accepted by cemetery authorities, as it offered them numerous advantages (particularly in relation to space). The emergence of lawn burial areas can be attributed to internal factors as cemetery authorities examined options for greater efficiency. The public responded favourably to this change for reasons of aesthetics and cost advantage. Consequently, decisions related to change in cemetery practice should be evaluated on merit (i.e. cost reduction, spatial efficiency and sustainability) by cemetery authorities in consultation with the community.



#### 4.1.2.1 Cremation.

Cremation has a long history in other parts of the world, but the concept of the modern crematoria began in Italy in 1866. In Australia, cremation was first employed on a public scale in 1903 in Adelaide, and eventually came to Perth when the crematorium was built at Karrakatta in 1937. Cremation has become by far the most popular choice of disposal method in Australia, accounting for at least 70% of all disposals, establishing Australia as the world's leader in cremation uptake (Davies & Mates, 2005).

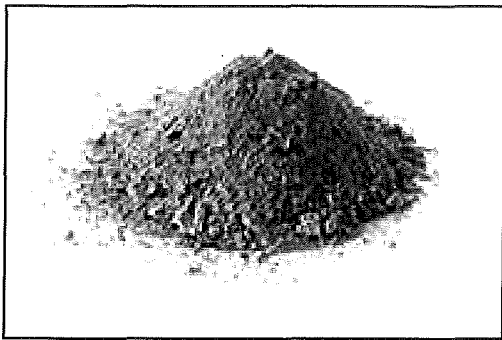


Figure 4.2. The 'cremains' of a single human body.

The significant reduction in size and weight (2kgs) has had a dramatic impact on the form of the cemetery landscape and has resulted in the memorial gardens that are a feature of all cemeteries (Davies & Mates, 2005).

(Image not scale)

To many people the slow decomposition of their remains in the ground is a particularly unappealing notion. Consequently, demand for cremation originated in the public domain. The most convincing and logical arguments of supporters for cremation concerned decreasing availability of burial space and burning as a more hygienic disposal of diseased bodies (Liveris, 1999). Contemporary understanding of disease confirms that corpses do not pose a serious health risk, even after a large scale natural disaster and mass casualties (World Health Organisation, 2004). However, the continuous growth of grave filled sites and increased awareness that the amount of space allocated to burials was unsustainable in the future, forced cemetery authorities to consider the cremation option (Liveris, 1999). Despite delays imposed by a shortage of funds after the Great Depression, crematoria and associated memorial gardens were eventually available in Perth at Karrakatta (1937), and later in Fremantle (1959) and Pinnaroo (2002).

The influence of the 'human driving forces' proposed by Head (2000) can be identified in a number of factors that have contributed to the rise in demand for cremation and the creation of memorial gardens. The effect of population change is reflected in growing demand for limited cemetery space, as well as being expressed in greater cultural and religious diversity. Economic influences are evident in initial delays

after the Great Depression and in subsequent public acceptance, particularly in relation to the estimated cost saving of approximately 50% in comparison to burial (see Figure 5.1, MCB services price list). Technology was also critical in the development of clean and efficient crematoria.

Cemetery authorities recognised the benefits of cremation as a disposal method, particularly in the reduction of remains and the capacity of memorial gardens to accommodate at least eight times the number of disposals (Figure 4.3). Cremation landscapes cater for 16500 disposals per hectare compared with 2000 per hectare in burial landscapes (Western Australia Cemeteries Working Party, 1987). Increased disposal densities serve the purpose of easing spatial constraints in older established cemeteries such as Karrakatta. Cremation offers a more sustainable option by extending the operational life of a cemetery which also ensures a long term income stream.

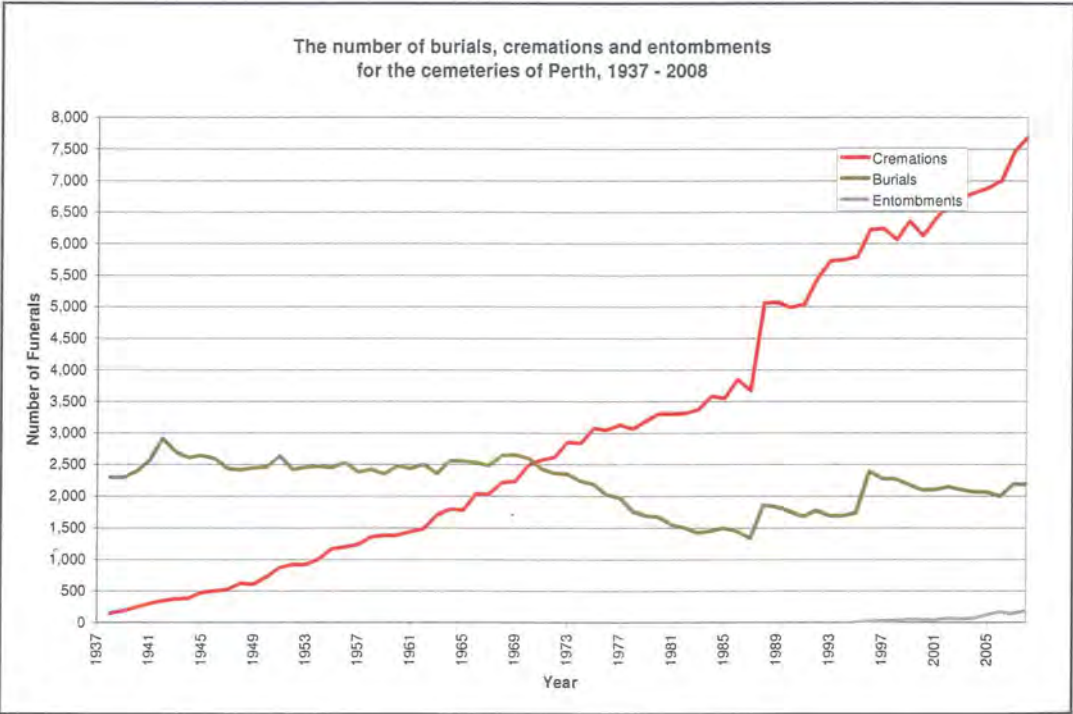


Figure 4.3. Graph of the numbers different disposal methods by year. This graph shows the number of burials has remained relatively stable since the introduction of cremation in 1937 (MCB Excel Datasheet, 2009)

Changing beliefs and attitudes have had a greater influence on the rise of cremation than in any other cemetery landscape change. The immigration responsible for rapid population growth in Perth also contributed to religious diversity. A large proportion of Perth’s population (approximately 70%) have religious beliefs that specify a preferred form of disposal. For example, the Islamic faith does not permit cremation

and Judaism, though technically allowed, does not encourage this practice. Until recently, this was also the position held by devout Christians. Some Christian denominations have withdrawn the restriction on cremation; notably Anglicans in 1944, and a softening of the Catholic position occurred in the 1960's. However, some Christians still oppose cremation on grounds of destruction of the mortal vessel. (Davies & Mates, 2005). In contrast cremation is the preferred option for Buddhists and Hindus.

Figure 4.4 reveals an increase in the number of religions represented within the Perth community. While population growth has led to increases in people of each faith, the corresponding growth in the number of different faiths has diminished the influence of any one particular religion (especially Christianity). Only the atheist segment is growing and its trend mirrors the increasing acceptance and popularity of cremation.

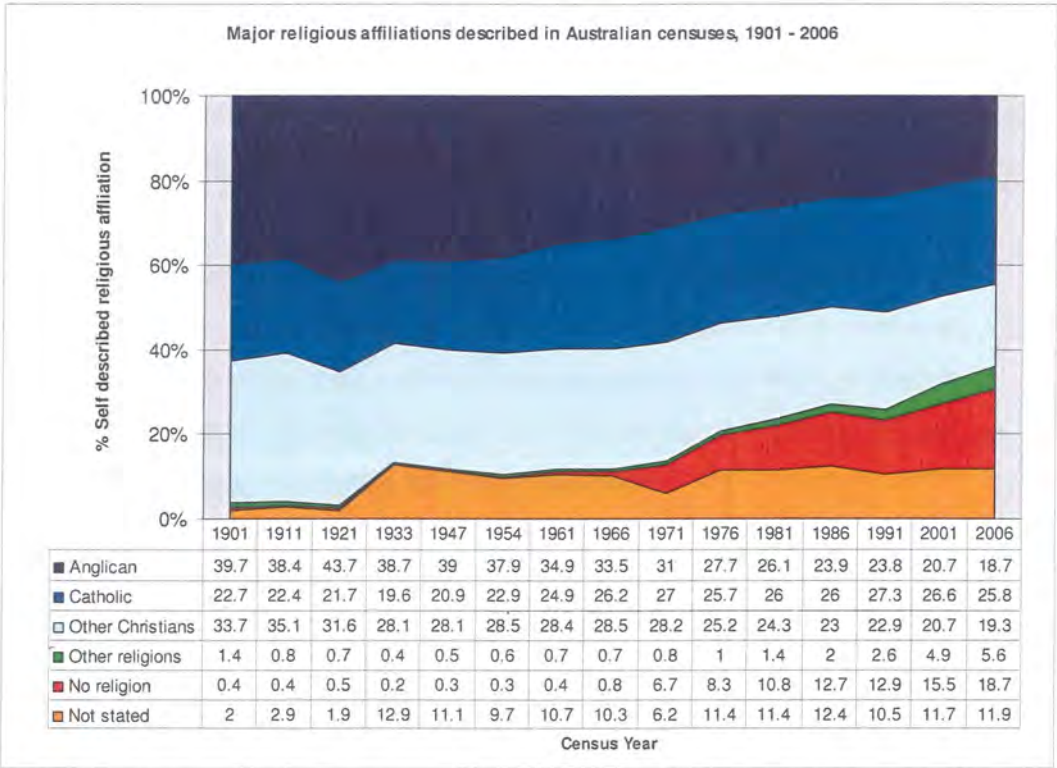


Figure 4.4. Graph showing the change in religious beliefs of the Perth community. Comparing the census results for 1933 to 2006, the most significant changes are the rise of two groups: those declaring no religious affiliation and those who believe in non-Christian gods. While the later is a result of population growth by immigration, the former is a new phenomenon. The proportion of the Australia population that is atheist is one of the highest in the world. (BoS)

As an atheist does not believe in an afterlife, the rituals and traditions associated with death become less important or at least less rigid. Free from religious constraints, atheists tend to consider other factors, such as concern for the environment, in their selection of disposal method. Environmentalism can at least in part be credited with the

rise in cremation. In the past, cremations have been considered as the most environmentally compatible of all the disposal methods, however, this is a position is now being questioned. The environmental benefits have been traditionally associated with space and material savings, as opposed to burial in a coffin. Studies suggest that the greenhouse emissions from cremation are slightly less (about 10%) than from at least 25 years of maintenance of a burial grave (Davies & Mates, 2005). Ironically, as concerns about greenhouse gas increase, cremations are being compared unfavourably to newer more sustainable approaches, such as natural burials (*Natural Burial Grounds*, 2008).

The increased range of memorialisation available with cremation is another reason given for its popularity. It is a response to another trend in beliefs and attitudes, that of increased individuality. There is an expectation amongst modern consumers that there will be options for personalisation and expression. Presented with a choice between the small flat plaque of a lawn burial and an option from the 72-page brochure of memorialisation, it is understandable that many consumers choose the latter.

The final social trend that is credited with cremation's popularity is the increased mobility/ transience of a large portion of the populace. Whereas burial disposals are effectively permanent, urns containing cremains can be taken home, or quite easily relocated from the niches and garden containers to other cemeteries or locations. Such flexibility appeals to families and individuals who expect to change their place of residence a number of times in their life.



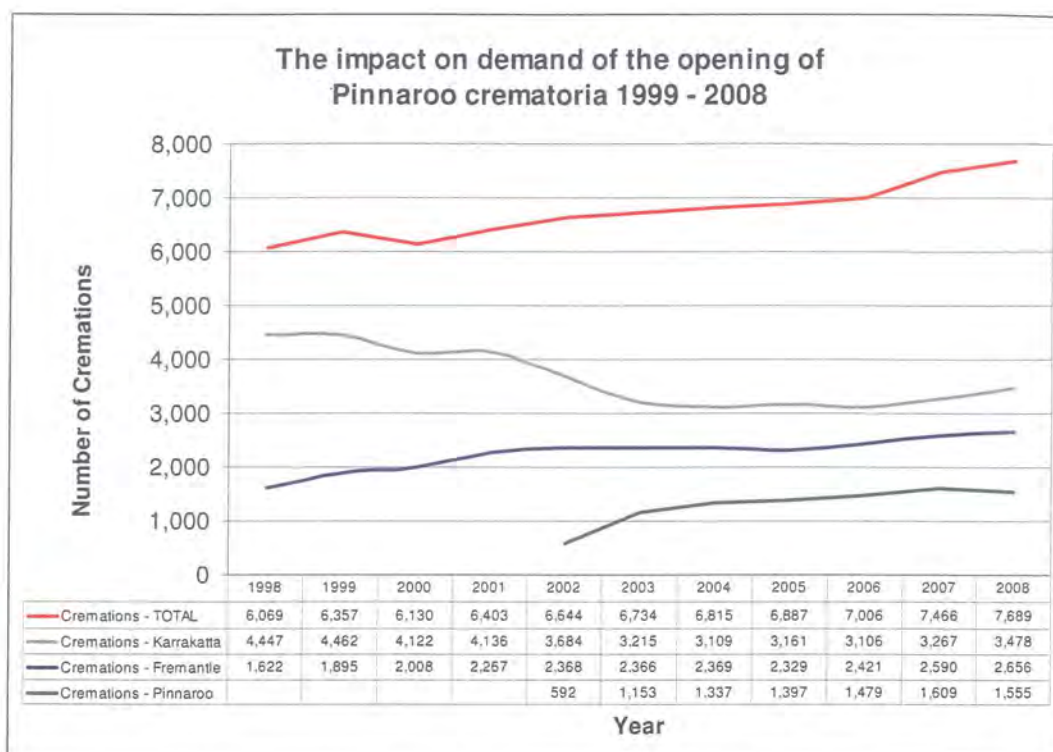


Figure 4.5. Graph showing the demand for cremation by cemetery. This graph shows the demand impact of the opening of the crematoria at Pinnaroo. The increase in cremations at Pinnaroo appears to be taken from demand for cremations at Karrakatta, while the steady increase in total demand for cremation was unaffected.

With the introduction of the Pinnaroo crematoria in 2002, there is an opportunity to examine its effect on the demand for cremations (see Figure 4.5). As the number of cremations at Pinnaroo increased, the data reveals a corresponding decrease in the number of cremations at Karrakatta. There is no discernable impact on the rate of cremations at the Fremantle crematoria, which suggests that the extra capacity provided by Pinnaroo did not increase total demand. Instead, the numbers of people who choose cremation continue to grow for cultural reasons. These consumers are mobile and before 2002 travelled from anywhere within the metropolitan area to Karrakatta for cremation. With the addition of a crematorium at Pinnaroo those people living in the northern suburbs were able to access similar service closer to home. This data provides evidence that the cemeteries are operating as complimentary rather than competitive sites. As people are more mobile their decisions are increasingly based upon what they want, not simply on what is offered locally.

#### 4.1.2.2 Burial landscapes

The rise in popularity of cremation has dramatic. Figure 4.6 shows the rapid adoption of cremation by those not bound by religious beliefs. However, due to cultural and religious requirements there will always be a need for burials in about 20% of the population (MCB renewal report). It is also unlikely that burials will fall much below this value as a proportion of the population will continue to be bound by their religious beliefs and personal preferences.

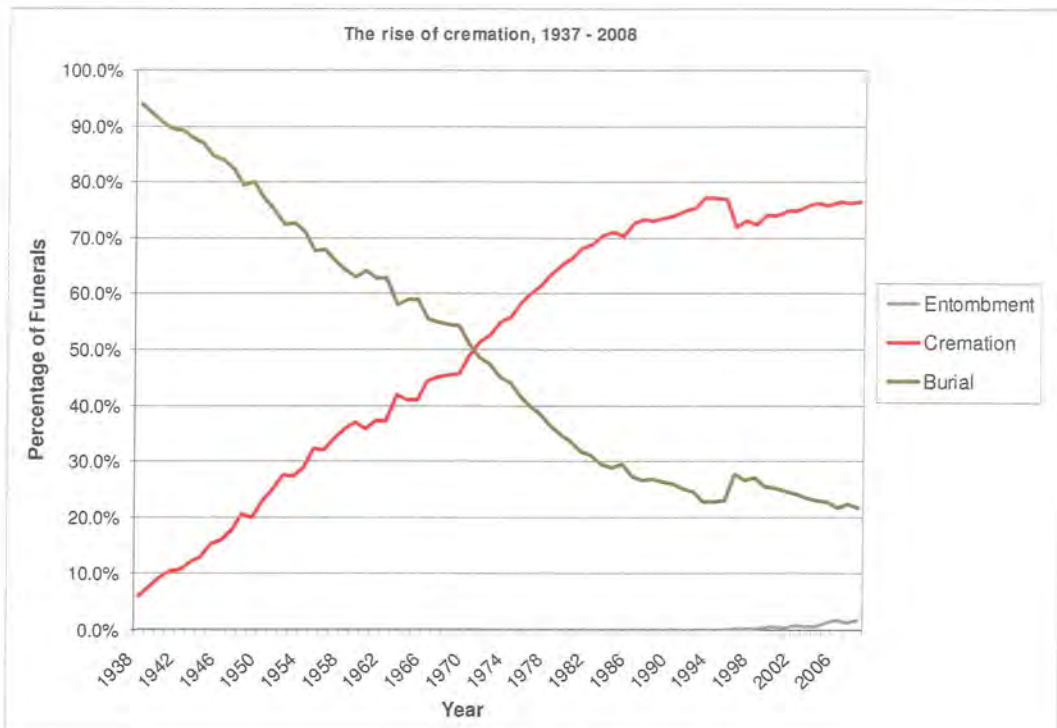


Figure 4.6. Graph showing the percentage share of each disposal type over time. When viewed as a proportion of the total funerals it can be seen that cremations became the popular choice in the early 70's. The chart does show some stabilisation of these figures as there will always be a certain portion of the population that for religious or personal reasons cannot be cremated, such as Jews and Muslims (MCB Excel Datasheet, 2009).

Unlike cremation, the changes to burial landscapes were not a direct response to external public demands. Instead, these changes were driven by internal factors that are primarily related to improvements in efficiency, particularly in cemetery maintenance, and offered benefits that made them also acceptable to the public. There is a discernable evolution of burial landscapes in Perth from the full monumental landscapes of older cemeteries (e.g. Karrakatta) to the flat plaque lawns of Pinnaroo. The visual appearance of these different burial landscapes is the results of decisions to use lawn cemeteries, to change the orientation of graves, and to reduce the size of memorialisation. Reasons

exist for such evolutionary change. Full monumental plots experience a number of problems that can be eliminated by a change to lawn burial. With a full monumental plot the entire plot, including maintenance, is the responsibility of the owner of the Grant of Right of Burial (this could be the deceased or a member of their family). Over time as the connection with the deceased faded and visitations cease, many of these monumental works start to decay, creating a situation where they can become both unattractive and a public liability issue. The MCB cannot afford to maintain tens of thousands of such graves, and in principle will remove any works that are deemed unsafe; however, this is an expensive and unsatisfactory solution. The general appearance of full monumental landscapes is lifeless and desolate, as the sandy ground between these plots cannot be watered as this promotes weed growth and associated high maintenance costs. A move to lawn burial addresses all of these issues of management.

In a lawn grave only the memorial is the responsibility of the owner, while the grassed section is managed by the cemetery authorities. Lawn is not difficult to maintain and to most observers creates a landscape that is arguably more attractive than full monumental areas. By making the change to lawn areas, the MCB takes control of the appearance of a large portion of the landscape that would otherwise be left in the hands of a varied and sometimes uncaring public. Lawn has its own set of maintenance issues and needs to be regularly cut. The initial lawn burial areas arranged the graves head-to-toe, which results in the narrow rows of headstone shown in Figure 3.29. In the 1970s the orientation of the graves was changed so that they would be aligned head-to-head, doubling the space between the rows of headstones. This created a less cluttered visual arrangement and had the added benefit of allowing for the use of larger and more efficient lawn mowers. The memorialisation has also decreased in size and grandeur, but this does not have a great bearing on maintenance until it reaches the form used in Pinnaroo, the flat plaque. Now the Pinnaroo lawn areas resemble parkland and lawn maintenance is unhindered by memorialisation. Lawn areas also offer a number of advantages to the customer, which is a condition essential for their acceptance. Not only is less maintenance required, but the lawns create a more attractive environment for families and visitors. More importantly, there is no longer a need for families to purchase expensive monumental works as only a headstone or small plaque is permitted. As well as being less expensive, the reduction in ornamental stone use is perceived by many people as being more environmentally responsible.

Although evolution in the burial landscape can be attributed to the MCB's drive for efficiency, reduced maintenance costs, and a more aesthetically pleasing landscape, this did not happen without advancements in technology. With a head-to-head arrangement, the wall between the plots is much thinner than in the evenly spaced head-to-toe layout (Liveris, 1999). Loose sandy soils in Perth have a tendency to collapse when graves are dug too close to each other. This soil characteristic prevented the use of head-to-head arrangements until advances in excavating machinery and temporary retaining walls solved the problem. Economies associated with lawn areas also help to explain the timing of their introduction in 1942, a time associated with world conflict, austerity and rationing of scarce resources.

### **4.1.3 Infrastructure**

Cemetery infrastructure supports the disposal methods in use. The factors addressed in Section 4.1.2 regarding cremation and burial have collectively been responsible for the infrastructure developments in each of the cemeteries. The regional sites have a complete range of services and the necessary infrastructure to support them. There has been an expansion of building works with the addition of chapels, crematoria, mausoleums, cafes, pagodas, offices and works depots. The cultural factors that continue to drive this expansion of infrastructure can be linked predominantly to population change and technology. The increase in cultural diversity and population can be associated with the general increase in the amount and variety of services offered by Perth's cemeteries. Cultural diversity is reflected in some of the decorative features in the disposal landscapes, such as a Chinese pagoda at Midland. Works depots are required for the storage of large maintenance equipment and items associated with the modern technology in use at cemeteries. Car parking is now inside rather than outside the grounds, as older cemeteries were often established before significant motor vehicle ownership. Landscaping and water features in the memorial gardens are also good examples of the increase in constructed environments that are absent from older cemetery landscapes.

### **4.1.4 Spatial Organisation**

There were three main observations regarding spatial arrangement drawn from the descriptions of the six sites: the division of areas into various denominations and general areas, the pattern of internal cemetery growth, and the overall layout of the cemetery landscape components. As with the other landscape components the varying



degree of influence of Heads (2000) 'human driving forces' has served to shape the landscape.

The first observation concerned the increase in the use of nondenominational space. New areas in older cemeteries are generally nondenominational and new cemeteries are entirely nondenominational. A comparison of the MCB visitor maps of Karrakatta (Figure 3.4) and Pinnaroo (Figure 3.16) serves to highlight the appeal of non-denominational areas to cemetery management. Such major change in cemetery practice could not take place without public acceptance. The growth of the atheist segment of the population (see Figure 4.4) has played a critical role in the increased use of non-denominational areas, particularly in second generation sites. To totally discard the practice in third generation cemeteries required the religious portion of the population, in particular their spiritual leaders, to accept the idea. The introduction of cremation also played a significant role in the wider use of non-denomination areas. As explored in the Section 4.1.2.1 on cremation, different religions have responded growing popular demand for this practice adopted a more flexible position. Cremation involves the use of secular crematoria and the scattering and mixing of ashes on non-consecrated ground (Davies & Mates, 2005). This means that insistence on denominational zoning is largely impractical. As various religious groups relaxed their restrictive interpretations, the MCB was presented with an opportunity to move away from denominational zoning. For example, difficulties associated with managing 39 separate denominational sections in Karrakatta alone, played a large role in the decision. (Liveris, 1999) page 70.

The second observation was that the general spatial layout of new cemeteries is substantially different from older ones. New cemeteries, such as Pinnaroo Valley Memorial Park, follow the natural contours of the landscape and display curved lines (as illustrated in Figure 3.35). Technology and modern reliance on motor vehicles have produced a road layout that mirrors suburban design. One explanation is that the curves function as a traffic calming device. Car access was not part of the original design in second generation cemeteries, while a grid-like pattern allows for simple record keeping and location of graves. Environmentalism and aesthetic appreciation for natural landscapes are also contributing factors to increased public preference for this type of layout. The placement of memorial gardens in third generation cemeteries near entrances and in central locations is used to showcase cremation options to visitors.

Finally, a centrifugal pattern of growth is, at least in part, evident in all of Perth's second generation cemeteries, and as well as in the renewal landscapes at

Karrakatta (Figure 3.3). The length of time that a cemetery has been open contributes to the complexity in internal growth patterns. Second generation cemeteries have been operational under a range of changing cultural conditions, and therefore, display a wider variety of landscapes. The modern memorial parks have not experienced significant social changes and do not show the same degree of complexity and variation in their disposal landscapes.

## CHAPTER 5: SUMMARY AND CONCLUSION

This research was motivated by the striking differences in appearance of Karrakatta and Pinnaroo cemeteries and began as a search to explain the reasons for such a contrast. The approach adopted in this study consisted of two sections. The first adapted the methods used by Francaviglia (1971) to create a framework for examining cemetery landscapes and then applied this framework to each of Perth's six operational cemeteries. Components of their respective cemetery landscapes were described, and the data was collected and analysed for key developments and trends. The second section considered each of the cemetery landscape components, and guided by Head's (2000) model of cultural drivers of landscape change, identified a number of cultural trends and changes. These two parts contribute to a geographic interpretation and explanation of Perth's cemetery landscape, its appearance, and the underlying reasons for changing patterns in time and space.

Many different conceptual approaches can be applied to a cemetery landscape. In this dissertation the cemetery landscape was examined from the perspective of a cultural geographer seeking to explain the observable differences between, and within, cemeteries. Dividing the landscape into its component elements, the following four categories were developed: site and situation, disposal areas, built infrastructure, and the spatial organisation of these elements. *Site* characteristics, area, topography and the flora and fauna all contribute to the appearance of a cemetery, as does its relative location and surroundings. *Disposal landscapes* were subdivided into five main types: full monumental burials, lawn burials, memorial gardens, entombment, and renewed land. Burial landscapes occupy the greatest portion of a cemetery landscape. The *infrastructure* consists of the paths, roads, offices, maintenance yards, crematoria, chapels, and cafes that are an essential part of the landscape and play a role in determining the final appearance of the site. The *spatial arrangement* of all of these elements can vary from a strict grid layout to organic curves, and as a result the morphology contributes greatly to the overall appearance of a cemetery. Of the landscape components identified in this study, the disposal landscapes are considered the most important based upon the area occupied, their relevance to various stakeholders, and the dramatic contrasts in their various forms.

Collectively these components serve as a basis for comparing the six different cemeteries. Data from these sites revealed a number of trends and patterns. For example, it is readily apparent that the third generation of cemeteries has a distinctly different appearance compared with the second generation. In addition, all six

cemeteries can be sorted into three groups based on morphology (refer Figure 3.22). The first group comprises the older regional cemeteries (Karrakatta and Fremantle) that offer a full range of disposal services. These cemeteries have similar infrastructure and a mixture of all the disposal landscapes described in Chapter 3. The other two second generation cemeteries (Midland and Guildford) are now sub-regional sites. Both sites share a similar morphology marked by the extensive use of full monumental plots and an absence of both lawn areas and well developed infrastructure. The third generation are strikingly different in their morphology; both Pinnaroo and Rockingham make extensive use of lawn burial areas and elaborate memorial gardens.

A closer examination of the site and situation component of a cemetery landscape reveals that cemetery sites are selected for a number of characteristics. These shared characteristics tend to give a commonality to the appearance of these cemeteries. Most notably, the sites are all positioned on hills, or at least sloping land in the case of Pinnaroo, and have soil characteristics that provide good drainage but a poor digging medium. The highly constructed form of a cemetery landscape means that other site characteristics play only a minor role in the overall appearance. The relative situation of these cemeteries has also contributed to their form. The second generation sites were all originally situated on the periphery of the settlements (Perth, Fremantle, Guildford and Midland) and local communities they served. As population grew these settlements expanded and merged into the greater metropolitan Perth region. This expansion of settlement had the effect of changing the relative situation of these cemeteries from the periphery of a settlement to an urban or suburban location.

Spatially constrained and absorbed by the city that grew around them, these cemeteries became part of an integrated disposal system for the whole city. One of the factors that enabled Perth's growth is the increased personal mobility of its populace after the Second World War. With increasing mobility people are more likely to use a cemetery that offers them their preferred disposal options, and to not simply choose the local facility. The management of the cemeteries did not reflect this situation until it was brought under the control of the MCB in 1987. This officially transformed the individual second generation facilities into a disposal system with four complimentary sites. Karrakatta and Fremantle were designated as regional facilities, while Midland and Guildford became sub-regional sites with infrastructure developments and funding assigned accordingly. To this end, the regional facilities offer a full range of disposal services and this is reflected in the appearance of their landscapes and associated infrastructure. Finally, the third generation of cemeteries was intended to expand the



capacity and geographical range covered by the system. These cemeteries were the first to be planned with the conceptual understanding that they would be part of a larger system and network of cemeteries for Perth. With this objective in mind, it was possible for cemetery authorities to focus on predicted trends and future needs of the community. A specialist role for these cemeteries, in exclusively offering just lawn burials and memorial gardens, was possible as people requiring more traditional options were able to fulfil their needs at other sites.

This dissertation also sought to answer the question (research question 3) of who determines cemetery practice, or who is the 'gatekeeper' to the cemetery landscape. Historically, a number of different boards and councils have controlled the operation of these facilities as Perth grew and merged to become the greater metropolitan area. Eventually, the Metropolitan Cemeteries Board was formed in 1987 which served the purpose of consolidating authority and planning, as well as producing cost efficiencies (Western Australia Cemeteries Working Party, 1987). The MCB is a non-profit, quasi-governmental authority that has been tasked with the mission of providing dignified, culturally appropriate facilities for burial, cremation and commemoration. It goes about fulfilling its objectives, guided by general business principles of efficiency and operating under legal, financial and spatial constraints. The MCB views itself as a service provider for the needs of Perth (A. Fox, MCB, personal communication, October, 2009) and maintains active channels of communication with the wider community, funeral homes and other cemeteries to ensure that the needs of various stakeholders are met.

This study determined that the disposal landscape was the most significant contributor to the appearance of cemetery landscape. The disposal landscape is a product of the method of disposal and the type of memorialisation. Introduction of cremation and lawn burials were the two most important cemetery practice changes to influence its observable morphology. Each of these disposal landscapes has undergone an evolution since their introduction, in 1937 and 1942 respectively; as described in Chapter 3. These two practice changes have an interesting symmetry. Cremation can be thought of as being motivated externally for a variety of cultural reasons, and accepted by the cemetery gatekeepers because it offers them numerous advantages, such as easing spatial pressures by offering a much higher density of disposals per hectare. The other practice change was the introduction of lawn burials. The evolution of these burial landscapes can be regarded as being motivated internally by efficiency and management improvements, and then accepted externally by the public (mainly because it is less

expensive and is more visually attractive). The infrastructure component of a cemetery exists to support disposal landscapes, and the same cultural factors that led to the increased range of disposal landscapes have also been responsible for the development of a wider range of infrastructure.

Examination of the spatial organisation within a cemetery revealed three trends that impacted on appearance. The first of these trends was the increased use of non denominational zoning at the second generation sites, and the complete lack of denomination areas in the third generation sites. This practice change is associated with changing attitudes and beliefs in society, as well as the difficulties associated with managing a large number of zones in spatially constrained sites. The second observation is that the general layout of cemetery sites is dramatically different between the second and third generations. The regular grid layout of the second generation sites is a reflection of the planning process in surrounding suburbs, and indicates that the same design principles were applied. The new sites also reflect the spatial arrangement of nearby, modern suburbs, and utilise curving road plans that appear to be influenced by the same traffic calming ideals. Finally, it was noted that cemeteries tend to grow outwards in a centrifugal pattern that is modified by the site characteristics. The length of time that a cemetery has been operational is reflected in the extent of this centrifugal pattern of growth.

A significant component of this research addressed the question (research question 4) of how changing cultural factors have been involved in the development of the observed cemetery landscapes. It was found that cemetery practice and the landscapes they create, has changed over time due to the influence of cultural changes in society. Head (2000) provides a means of classifying these human drivers of landscape and environmental change, and it was possible to identify the influence of those factors in the trends and developments identified in this study. The following five classifications were proposed: population change, economic factors, technological change, politico-economic institutions and attitudes and beliefs.

The first factor of population change has a significant bearing on cemetery operations and there is a clear and direct link between population growth and a need for increased disposal capacity. Population growth consisted of a succession of waves of immigration from all around the world. The total Perth population has grown and is more densely concentrated over a larger area, and is more culturally and ethnically diverse than in the past. The response of the cemetery industry has been to increase the scale of operations, both in number and total area of cemeteries. The outcome was

almost a doubling of total cemetery area with the opening of the third generation, and the whole system now offers a wide range of facilities and services to meet the needs of all the community. This population growth was responsible for the Perth's expansion the transformation of individual sites into a city-wide disposal system.

The influence of economic factors can be observed in many of the decisions revolving around cemetery use. Economic factors ground the operations of the MCB in general business principles. As cemeteries are now self funding, the pressure for efficiency and cost reduction plays an influential role in practice decisions. Another example of economic influence is found in the timing of the introduction of key cemetery practice changes. Cremation and lawn areas have been linked to the financial hardship of the Great Depression and the austere times of World War Two respectively. In both these developments there was a demonstrated financial motivation for both the community and the MCB. Another example concerns the influence of pricing, and it is no coincidence that the methods and practices that have proved most popular (i.e. cremation) are also the ones most competitively priced.

Cemeteries are generally considered as conservative and traditional, and consequently not places that are greatly affected by technological change. But, closer inspection (research question 5) reveals a number of ways in which technology has played a part in changing cemetery landscapes. Among the most important developments was the invention of clean and efficient crematoria that led to the creation of the memorial garden. The evolution of the burial landscape was linked to the efficiency gains from the use of larger maintenance equipment and improved digging technology; although, it should be noted that other factors such as the aesthetic improvements also played a considerable part in the acceptance of lawn burial areas. Another example of technology driving cemetery landscape development is found in the increased use of personal transport and how cemeteries are catering for motor vehicles internally.

The role of politico-economic institutions, such as the MCB and its interaction with the various churches, ethnic groups, and groups lobbying for cemetery changes, has already been explored in Chapter 4 dealing with the role the cemetery landscape 'gatekeeper'. There is also the effect of the different religious bodies and their decrees allowing the use of cremation or burial in unconsecrated ground.

Probably the most influential of the cultural factors has been the changing attitudes and beliefs of the population of Perth, largely influenced by the diversity of migrant groups. Factors including the increased number of religions, their decreased

market share, and the dramatic rise in atheism in the last 40 years have played a significant role in many of the changes in cemetery landscapes. Peoples' religious beliefs contribute significantly to decision about selection of disposal method, and it is not surprising that shifting religious attitudes have added to variation in the cemetery landscape. The selection of hilltop sites is linked to Judeo-Christian beliefs that dominated the population at turn of the 20<sup>th</sup> Century, when second generation cemeteries were planned. The impact of greater cultural diversity in Perth's population is reflected in the decision to consult with Feng Shui experts before the re-profiling of Rockingham. An even more important change has been the increase in the size of the atheist population. Once freed of religious constraints people tend to express other beliefs and attitudes in their choice of disposal. Environmental concerns now motivate many decisions and are expressed in the rise of cremation, the greater use of native plants, and the organic curving designs of modern facilities.

Overall, the trends and changes in cemetery landscapes can be attributed to population growth from natural increase and immigration, resulting in more people, population spread more densely over a larger area, and people from a diversity of cultural backgrounds and belief systems. Such population growth has been mirrored by an expansion of the cemetery system, adding more sites, covering a wider area and offering a greater variety of services. Over time changes in cultural factors have driven changes to cemetery practice and the variations in practice are expressed in the extent of variety in cemetery landscapes.

An examination of developments in the cemetery landscape over the past 120 years, as well as an understanding of the underlying cultural factors, assists to forecast the direction that body disposal might take in the future and how this may change the appearance of the cemetery landscape. It is likely that a renewal program will be implemented at Fremantle and other second generation sites, to extend their lifespan and to continue to offer familiar services which produce recognisable disposal landscapes. It would require the introduction of a new disposal method to produce a dramatic change away from the existing recognisable landscapes. Cultural trends examined in this study suggest that the Perth's future population will include a larger proportion of atheists, and that environmental and financial concerns will continue to play an important role in decision-making. In other cities these trends have led to the emergence of the '*natural burial*' movement (Rounsefell, 2009). Natural burials do not use a traditional casket, instead make use of a sheet or readily biodegradable cardboard. The body is placed in the more biologically active upper layers of the soil to speed decomposition. These



burials take place in natural settings and use a minimum of memorialisation. This type of burial costs very little and has minimal environmental impact. Starting in 2010, the MCB will introduce a trial natural burial section at Pinnaroo and it is anticipated that this practice will become a popular option in the future (Webster, 2008) (A. Fox, MCB, personal communication, October, 2009). The natural burial landscape can be seen as a further evolution of the lawn areas at Pinnaroo, although it is expected that this disposal landscape would not be instantly identifiable, or distinguishable in natural bushland.

The results of this study have application beyond the Perth region in terms of underlying themes and principles that have been identified, and the methodology can be used in other regions and settings. Other potential lines of enquiry and research also emerge from this study. The sustainability of traditional Aboriginal land management practices is an avenue of investigation with increasing relevance to this topic. There is without doubt a rich cultural landscape involved, but there is comparatively very little physical evidence of over 40,000 years of Indigenous Australian mortuary practice. The low environmental impact of Indigenous methods shows promise as a possible line of research investigating sustainable disposal processes for the future. Biodiversity in remnant bushlands contained within cemeteries may provide fertile ground for future research. Another line of enquiry worthy of investigation is cemetery capacity. An investigation into the capacities and potential life spans of different cemeteries under different population growth and cemetery consumption models is needed to continue the work of the WCPR (1987). Such information is required for planners to assess the future needs of the Perth cemetery system.

## Appendices

### Appendix A: Table of disposal landscape land usage per site

Data and calculations used in the preparation of the graphs, (Figure 3.23 and Figure 3.22) showing the division of landscape types for each cemetery.

Name	Karrakatta	Fremantle	Midland	Guildford	Pinnaroo	Rockingham
Full Monumental Burial	57.60	9.60	3.90	6.30	0.00	0.00
Lawn Burial Area	16.20	5.90	0.00	0.00	9.80	0.30
Memorial Garden	5.70	2.00	0.07	0.05	0.90	0.01
Entombment	0.40	0.20	0.25	0.70	0.00	0.00
<b>Total disposal area</b>	<b>79.9</b>	<b>17.7</b>	<b>4.215</b>	<b>7.05</b>	<b>10.7</b>	<b>0.31</b>
<b>Total Site Area</b>	<b>98.2</b>	<b>37.5</b>	<b>23</b>	<b>19.7</b>	<b>90.5</b>	<b>60</b>
Total NON Disposal Space	18.3	19.8	18.8	12.7	79.8	59.7
Potential capacity* (80%)	0.00	12.3	14.2	8.7	61.7	47.69
Infrastructure requirement at full capacity (20%)	18.3	7.5	4.6	3.94	18.1	12

Table 5.1. Table showing the breakdown of land usage at each site.

(source: image analysis McDonald, D. 2009)

Area is measured in hectares. Also shown is the potential disposal land after the infrastructure requirement at full capacity has been allocated.

\*assuming 20% of the total site is required for infrastructure at capacity as per Karrakatta Cemetery.

## Appendix B: MCB facilities and services price list 2008-2009

<i>Facilities &amp; Services 2008-2009 Price List</i>		
<i>Service Type</i>	<i>Where</i>	<i>Price*</i>
Adult Interment	K, F, P, M, G, R	\$1012.00
Child Interment (under 13 years)	K, F, P, M, G, R	\$519.20
Infant Interment (under 2 years)	K, F, P, M, G, R	\$222.20
Grant of Right of Burial (25 years) Lawn Area	K, F, P, R	\$1399.20
Grant of Right of Burial (25 years) Monumental Area	K, M, G, R, F	\$1345.30
Grant of Right of Burial (25 years) Monumental Area	F	\$1,257.30
Renewal of Current Grant of Right of Burial (25 years) Lawn Area	K, F, P, R	\$2,095.50
Renewal of Current Grant of Right of Burial (25 years) Monumental Area	K, M, G, F, R	\$2,020.70
Transfer of Grant of Right of Burial	K, F, P, M, G, R	\$47.30
Grave Selection Fee	K, F, P, M, G, R	\$167.20
<b>Cremation</b>		
Adult Cremation - includes lounge/chapel for 1 hour	K, F, P	\$891.00
Adult Cremation - selected chapels for ½ hour	K, F, P	\$746.90
Child Cremation (under 13 years)	K, F, P	\$570.90
Infant Cremation (under 2 years) - selected chapels for ½ hour	K, F, P	\$214.50
Infant Cremation (under 2 years) - no chapel service	K, F, P	\$137.50
Additional Chapel/Lounge Time - 1 hour	K, F, P	\$378.40
Webcasting Packages	K, P	From \$266.20
<b>Memorials and Urns</b>		
Urns - a variety of styles	K, F, P	From \$85.00
Memorials - refer to MCB Memorials Brochure	K, F, P, M, G, R	From \$493.90 incl plaque
<b>Prepaid Funerals</b>		
Pre-Need Interment Agreement	K, F, P, M, G, R	\$1,072.50
Pre-Need Lawn Gravesite (25 years)	K, F, P, R	\$1,529.00
Pre-Need Cremation Agreement	K, F, P	\$932.80
<b>Research Services</b>		
Location Queries	K, F, P, M, G, R	
- up to 4		free
- after 4		\$2.20 each
Photocopy of Record	K, F, P, M, G	\$5.50
Photographs	K, F, P, M, G	From \$26.40
* For service carried out Monday to Friday during normal cemetery hours		

Figure 5.1. The price list for facilities and disposal related services, 2008-2009. The letters correspond to the six operations cemeteries, **K**arrakatta, **F**remantle, **P**innaroo, **M**idland, **G**uildford and **R**ockingham. The pricelist includes memorials and urns for those who are cremated, as these products are supplied by the MCB. Monumental works such as headstones are sourced externally. (MCB, 2008)

This pricelist published by the MCB for the 2008 -2009 financial year provides a summary of the services available at the different sites. The use of the same prices across all the sites is evidence of the transformation into a single system that occurred with the formation of the MCB.

Appendix C: Perth Statistical Area

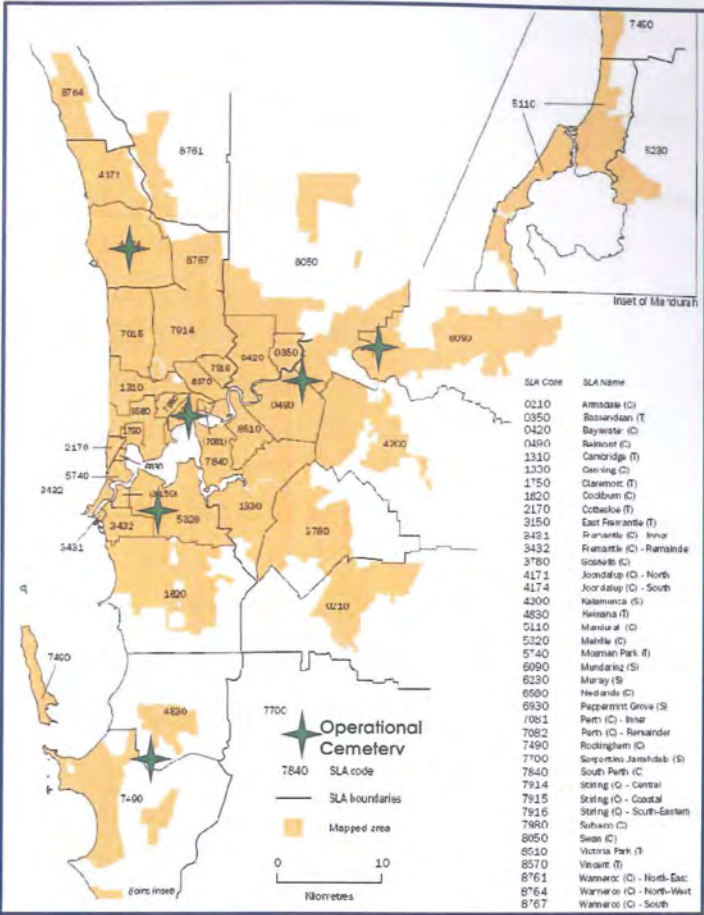


Figure 5.2 Map of the suburbs that make the Perth statistical area. Also shown are the locations of the operational cemetery sites. Note the correlation between populated areas and cemetery sites. (Australian Bureau of Statistics, 2006)



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